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Original Articles

THE CURABILITY OF EARLY PARESIS.*

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I wish to present what to my mind is convincing evidence that paresis, in its very earliest stages, in that stage which may be called one of "præparesis," is a disease that sometimes can be arrested. This arrest may be permanent, and may be attended with so little mental defect that one may call the patient practically cured.

PARESIS, TABES AND SYPHILIS.

It is now quite generally admitted that paresis is almost always a parasyphilitic disease; that is to say, one which is due to the late and degenerative influence of a luetic poison. Paresis is also looked on as a disease which has the same relation to the brain that tabes dorsalis has to the spinal cord. This relationship, indeed, is so often and so plainly observed that it can be considered a proved clinical and pathologic fact. We find, for example, in from 5 to 10 per cent. of the cases of degenerative syphilis of the nervous centers that the patient suffers both from paresis and from tabes, and has what is termed "tabo-paresis," the paresis gradually associating itself with tabes, or *vice versa*.

THE ARREST OF TABES.

Now, nothing is more clearly established than the fact that tabes dorsalis is often arrested in its early stages, so that a patient may live for 10, 20 or 30 years, and exhibit no practical progress or change in his symptoms. I have a number of patients under observation who illustrate this undoubted condition; and my experience, I am assured, is the common one.

If, then, tabes may be arrested in its early or pretabetic stage, there seems no reason to suppose that we can not also arrest and cure paresis in its earlier stage, and this is what I believe can be done.

The cases which I report, taken in connection with other clinical experiences which it is impossible to present without making my paper too long, have been sufficient to make me feel quite sure of my position in the matter. I am not asserting that paresis, when it is once well established, can be cured. In fact, I do not think it can be; and I know of no more hopeless malady when it has once got a full start.

Paresis not infrequently shows remissions, and these remissions may be prolonged to one or two, or even to five or six years. In these remissions, however, the mind, by no means, is restored to its original tone or vigor. The patient has only a "let-up," and is never the sound, vigorous-minded man he was previously. My patients have been more than cases of remission; their condition of mind and body has been restored, practically, to a normal level. I am not asserting the existence of remissions in paresis; that is one of the admitted features in the natural history of the disease. What I do assert is that in some cases in which the patient has shown unmistakable evidences of a degenerative and paretic process starting in the brain, this process has been arrested, evidences of it have even sometimes entirely disappeared, and the patient has gone on with his usual work.

I have not yet had patients under observation for a sufficiently long period of years to enable me to say that the paresis will never return. I can only argue from analogy in the cases of tabes dorsalis, and since we know that here the arrest of progress is sometimes permanent, we may legitimately infer that when it has occurred in paresis in the same way it may also be permanent. I would say further that there is nothing *a priori* impossible in the idea that paresis may be arrested and cured when it first starts in. We are able to arrest degenerative processes in other parts of the nervous system; we arrest degenerative processes, or we see them arrested, in the kidneys, in the liver and in other organs. Given a vigorous constitution poisoned with disease, it may well be that when it is put under the best possible conditions for fighting this poison, when its known antidote has been administered with heroic thoroughness, we might expect that the tendency of the tissue to die may cease.

PSEUDOPARESIS.

Also, in speaking of paresis, I wish to be understood that I am speaking only of general paresis or paralytic dementia, not of the so-called "pseudoparesis" of alcoholics or the "pseudoparesis" of syphilis. I have used these terms personally, and I know they are widely adopted as convenient expressions. I do not think, however, that this term, "pseudoparesis," is a very fortunate one, inasmuch as the disorders above mentioned are essentially simply forms of organic dementia, with an entirely different pathologic basis and clinical course from the real paresis. The so-called pseudoparesis of alcoholism, for example, is only an organic dementia, due to the connective tissue proliferation, the vascular changes, and the cellular atrophy brought on by the continued use of alcohol. The pseudoparesis of syphilis is simply a dementia brought on by the exudates of syphilis, leading to more or less severe secondary changes in the meninges and in the vascular supply. It is really an organic dementia, due to an exudative inflammation of the meninges and blood vessels. In true paresis the organic changes are comparatively slight at the beginning, and are probably mostly of a parenchymatous na-

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ture. There is no exudate and no early gross organic change. It is true, however, that in the early stages of paresis there may be some slight amount of luetic exudate, and that perhaps the degenerative changes in the cell are started by this process. We know also that there are cases of paresis in which there are both true primary degenerative changes and real syphilitic exudates present at the same time, so that the patient may be said to be suffering both from brain syphilis and from a paresis. It is strictly analogous to the conditions which occur in a spinal cord, where at times there may be a true tabetic degeneration and at the same time a decided syphilitic exudate, so that we have both locomotor ataxia and spinal syphilis together.

It is at this point that the weakness of my case, as I freely admit, may lie. It may be and probably will be contended that the cases which I assert are in the stage of "præparesis" are really cases only of slight exudative brain syphilis, and that my patients have simply been cured of a slight degree of a perhaps rather diffuse vascular and meningitic exudate. To this I can only reply that I have many times seen precisely this class of cases passing directly into a condition of true paresis, and that in all of my cases where there were admittedly some symptoms of syphilitic exudate, or some kind of gross organic lesion, there were with it also decided psychical and somatic symptoms, such as occur only, or mainly, in connection with the degenerative process of paresis. An Argyll-Robertson pupil, for example, is the sign of the onset of a degeneration, not of exudation. At the very most, while admitting that my opponents may be academically right, I would claim that they are practically wrong, for the reason that, basing my argument on experience with other cases, I feel sure that all or nearly all of these patients would have gone into a condition of true paresis if they had been let alone. Thus, when a patient who has given a distinct history of syphilis develops a form of agitated melancholia, and at the same time shows signs of cerebral degeneration, like the Argyll-Robertson pupil and disturbances in the knee reflexes, I should certainly be apprehensive that, under ordinary conditions, he would eventually develop a paresis, for I have seen a number of patients who entered paresis through this peculiar gate of melancholia, with somatic signs as indicated.

Again, if a patient with a history of syphilis, after a certain period begins to develop convulsions and shows Argyll-Robertson pupils, exaggerated reflexes, then begins to develop symptoms of loss of memory, change of character and disturbances of the instinctive feelings, I should feel very certain that if left alone he would pass into the condition of paresis, for it is through the gate of convulsive disturbances, epileptiform seizures and peculiar somatic signs that paresis sometimes develops.

Still further, when a patient, who gives perhaps a doubtful history of syphilis but whose life is such that he might easily have been subjected to it, and who has a headache, an eye-palsy, and previous to that has for some time shown great extravagance in action and ideas, with a decided change in character and weakness of memory, I would here also feel very sure that a paresis was developing.

Having observed the total disappearance of all these symptoms, under treatment, and the restoration of the patients practically to their former health, it has seemed to me that I may be right in claiming that it is possible to arrest for an indefinite time a disease which is certain to become a general paresis.

With these preliminary remarks, I submit the following records. They are not published in every detail because it seemed to me not necessary. I have given the salient facts with regard to the symptoms and course; besides this, the patients were all private patients of my own or of physicians who referred the cases to me, and some of the patients were men of prominence, whose intimate lives and identity I should dislike to expose. The histories should perhaps carry greater weight for the reason that they are not records of hospital or dispensary cases, in which data are often uncertain and the mental development of the patients of mediocre type:

CASE REPORTS.

CASE 1.—M. S., aged 40, married; occupation, broker.

History.—Family history shows a very bad indirect heredity. The patient had an infection before he was 20, which was treated. He had had seven healthy children. He had led a life of much social activity and business excitement. Three months before I saw him he began to get ideas of poverty and self-reproach, and when I saw him he had a distinct melancholia.

Examination.—The pupils were unequal, the left larger than the right; both distinctly Argyll-Robertson in type, though the right reacted very feebly to light. He claimed, however, that the left pupil had been larger than the right for fourteen years, and that this condition was due to a sunstroke (?). The left knee jerk was lively, the right weak. He had some tremor of the hands, but none of the face. There was no speech disturbance. He had had no seizures. Mentally he showed no dementia, but only a very profound and anxious depression, with some delusions of poverty and self-accusation. He suffered from insomnia, but had no headaches, and had no cranial nerve palsies except those of the eyes, and no disorders of the spinal centers or ataxia.

Treatment and Result.—He was seen by two physicians, one a very competent neurologist, who thought that he was developing paresis. He was sent to a sanitarium, where he was put under active treatment. In six months he came back practically well. The pupil of the right eye had become normal; the left was the same as before; knee jerks same as before. He has continued well and has been in active business now for over three years.

CASE 2.—J. D. H., aged 37, married; merchant by occupation.

Family History.—Direct heredity good; one sister had epilepsy; no other neuroses in the family.

Personal History.—He had a luetic infection twelve years ago. He was a man of temperate habits, but worked extremely hard. About two years before I saw him he began to run down and complained of sensations of pressure on the side of his head, which symptom continued very persistently.

Examination.—The pains and paresthesias extended down the back of the neck and into the shoulders. In other words, he had the annoying head, neck and shoulder paresthesias seen in beginning paresis. As his condition grew worse he began to be drowsy, and apparently required more sleep than normal. Three weeks before I saw him he had had two convulsions of an epileptiform character. At that time he was emotional and depressed, crying easily, and having apprehensions about his mind giving way. When seen by me he had been taking for some days 15 grains of bromid in the morning and 6 grains of trional at night. At this time he was depressed, his memory was poor, his speech was syllabic, but he had no tremor, and the pupils were normal, as were also the knee jerks. He was then having attacks of excitement at intervals with, at times, some brief delusions, but no hallucinations. He complained of his head and was very depressed and apprehensive. He appeared to me to have the physiognomy of a patient likely to develop paresis, and the history of convulsions, his speech disturbance, his feeble memory and his melancholia, all pointed in that direction. At the time I made a diagnosis of paresis, with a question mark.

Treatment and Result.—The patient was sent to the Wat-

kins sanitarium, where he remained for several months under the care of Dr. King. He had one more convulsion. He returned much improved and gradually recovered. He has continued well to the present time, which is four years from the period when I first saw him.

CASE 3.—B. R., aged 34, married; occupation, business. Family history negative.

History.—He has smoked a great deal. At 18 he had a luetic infection and "secondaries," and was treated for two years. Since that time he has had occasional periods of depression. In the two months before his visit to me he had again become very much depressed and melancholy.

Examination.—When seen by me he had no objective symptoms of any form of nervous syphilis. A week or two later he complained that at times he had shooting pains in the legs, the right pupil was then larger than the left, but the pupils both reacted to light and to accommodation. The reflexes were present, and he had no ataxia.

Subsequent History.—I lost sight of him then, but saw him again six months later. He then complained that his memory was poor, and that he was unable to concentrate his mind at business. He felt generally weak. His speech was not perfectly good, his articulation being somewhat thick at times, and he now had a distinct facial tremor and Argyll-Robertson pupils. His symptoms in general were those of forgetfulness, inability to concentrate the mind, occasional headache, and depression at times, though this had improved of late. This, it seemed to me, was sufficient to justify a diagnosis of probable paresis, and what I at first considered to be merely a mild attack of melancholia seemed now to be probably a very serious condition.

Treatment.—He was placed on mercury and tonics and sent off to rest. He steadily improved, and at the present time, now three and a half years since I last saw him, he is perfectly well and has been attending to his work for the last three years.

Remarks.—This might, perhaps, be interpreted as a case of recurrent melancholia with cerebral syphilis, but I think that, at least, with the speech disturbances, Argyll-Robertson pupil and facial tremor in mind, we may assume that a paresis would naturally have developed.

CASE 4.—J. R. K., aged 30; lawyer.

History.—He had an infection ten years before and was thoroughly treated for four years; he had had "secondaries," and during the last three years had had throat trouble, but not of a specific character. His habits are good, except that he has been a very hard worker. Two years before I saw him he began to have a slight amount of ataxia, and at the same time had some deafness. Six months ago the ataxia was very much better. One month ago he had pain in the eyes and diplopia, due to a paresis of the right externus.

Examination.—The fundus was normal. He had Argyll-Robertson pupils. He had great exaggeration of the patellar reflexes, no ankle clonus nor Babinski sign, some ataxia on standing and locomotion; mentally he was very nervous and excitable; he was unable to concentrate his mind and had some impairment of memory.

Remarks.—The diagnosis was made of impending tabo-paresis. This was two years ago. Since then he has been steadily improving and became able to resume work. He has now been attending to his work as a lawyer regularly for nearly two years, and though still ataxic and not by any means well, his mental and physical trouble at least has been improved and arrested.

CASE 5.—S. B., aged 40, married; broker. Family history is good.

History.—He has always been a very hard-working man; he has smoked immoderately and drank moderately. He had a luetic infection five years ago, with "secondaries," which were thoroughly treated. I saw him first in October, 1903. For nearly a year previous his mental condition had been changing. His wife had noticed that he was more morose, less inclined to social life, often unreasonable, and irritable and forgetful. This was simply attributed to his overwork and to the excitement of his occupation. In August, 1903, he had an epileptiform attack during the hours of business. He recovered from this promptly and continued his work. Later, in the month of October, he had another epileptiform attack at night, followed by a period of maniacal excitement, lasting for one or two hours, in which he became quite violent.

Examination.—I saw him the next day. He was a large, robust man, with a very healthy physiognomy. Mentally he seemed practically normal, although he was naturally much disturbed and apprehensive over what had occurred. He exhibited to me no traces of forgetfulness or ideas of grandeur. Physically he had distinctly the Argyll-Robertson pupils, and the knee jerks were exaggerated; there was no facial tremor or hand tremor. The writing was normal. He had no lightning pains and no paresthesias.

Subsequent History.—This patient has now been under observation for over a year. For some time he showed an abnormal exhaustibility and irritability, of both body and mind, so that he tired very easily in walking, and had a disinclination to the mental activity involved in social intercourse. His disposition was for some time a good deal changed; he was morose, childish and suspicious of his wife, unreasonable and irritable. He, however, never showed any lack of judgment or any forgetfulness in business affairs; he was only childish in his domestic and in certain social relations. After about six months the pupils, which had been stiff, became normal the knee jerks remained about the same. He had no further convulsive seizures. At the present time this patient seems in every way to be a normal man. He had not had any severe headaches, no lightning pains, no disturbance of the spinal centers.

Remarks.—The probability of an impending paresis was based on the very marked syphilitic infection, which had been rather obstinate in his case, and the occurrence of two convulsions, without previous headaches, the change in his disposition and character, the forgetfulness about things in his domestic relations, a carelessness of speech and manner, which were not natural to him, and the condition of his pupils. His own physician, Dr. Sherwell of Brooklyn, and with whom I had several talks about the case, shared with me, I think, though perhaps to a less degree, the fear that he might develop paresis. This was the club held over his very impetuous nature which obliged him to change entirely his mode of life, and by reason of which I think he escaped the catastrophe.

CASE 6.—H. B., aged 43, married; occupation, broker. Family history unknown.

History.—The patient, from boyhood, had always been a very hard-working, excitable man. He had lived a pretty fast life, drinking considerably, but he was not a smoker. He was a man whose habits of expression and thought were always very extravagant, and whose business dealings had been, normally, of a very large kind. He denied any specific infection, but I am sure he had lived a life which would have exposed him to it. In the spring of 1904 he was under a specially severe strain and had lost a good deal of money. In June he had a paresis of the left internal and right external rectus for which he consulted Dr. Koller, who kindly referred him to me.

Examination.—When I first saw him in July he talked in a very extravagant and excitable way, telling me remarkable stories about his business, which I believe were more extravagancies than actual delusions, and I learned from his friends that this was his way of talking. He had double vision on account of the internal rectus of the right eye. His pupils were dilated, the left larger than the right, and neither reacted to light, but reacted to accommodation; the optic nerve and vision were normal. He had a fine tremor of the hands, but none of the face or tongue, and speech seemed clear, though occasionally there was a little slip; his writing also was fairly good. The knee jerks were somewhat exaggerated, but there was no clonus. He had no ataxia and no lightning pains. The bladder and sexual functions were normal. The memory did not seem impaired.

Treatment.—He was given a course of hypodermic injections of mercury, and then went to Europe for six weeks, where he

became more depressed. On his return he continued under the treatment of Dr. Koller for his eye condition. He gradually improved, both mentally and physically, until now his eye is nearly normal; he has no tremor, the knee jerks are less exaggerated, and his mental condition is, perhaps, better than it ever was in his life.

Remarks.—This case might be interpreted as possibly one of paresis, with a remission, but I feel very confident that he did not have a frank attack of paresis when he came to see me, and that he was then suffering only from a sort of grandiose excitement, with Argyll-Robertson pupils, and an eye palsy. A little further delay and he would have been fairly a paretic.

CASE 7.—This case was less striking than the others, but, taken in connection with them, it has significance.

Patient.—J. H., aged 46; family history good; designer.

History.—He had syphilis at the age of 23 and was treated thoroughly by specialists. At 34 he had some mental depression and rheumatic pains. He was relieved by hypodermic treatment with mercurials. He married at 37 and had a healthy child. At 46 he had nervous attacks consisting of agitation and trembling, and he has also had a good deal of dyspepsia. On this was engrafted an "anxious depression" or mild form of hypochondriacal melancholia, which did not keep him from work. He had no objective symptoms, but complained of his depression and dyspepsia. He gradually recovered, but a year later complained of entire loss of sexual power, annoying failure of memory, difficulty in concentration and work, and dyspeptic symptoms. This condition continued for a year, with some remissions, but finally he reported himself as practically well of everything but his sexual weakness. He had no symptoms of tabes at any time, except his sexual weakness. I watched constantly for the development of signs of paresis, but he had only the failure of memory, inability to concentrate his mind, and the initial melancholia.

The patient, from the time he was 34 till he was 46, took courses of mercury by injection. At first he took an injection every two weeks for two years. They acted on him as a tonic, the effect lasting for a week or more. Later he took the injections at much longer intervals.

These histories, I might repeat, may seem to present inconclusive evidence of the real existence of paresis. I think, however, that most of those who are familiar with such cases will admit that they have seen paresis beginning in this way and going on to the full-fledged condition. Such cases certainly have occurred in my experience, and usually after these initial symptoms were already matters of the previous history.

The importance of recognizing paresis before it is in a way real paresis is the very evident lesson of these histories.

TREATMENT.

In conclusion, I would say a word only in regard to the treatment of these conditions. It seems to me that if the cases are recognized early there is no need of any very novel methods of treatment; there were none employed here. I believe that the patients should at once be turned entirely from their former modes of life; that they should be sent where they can get rest and fresh air; that they should receive, if possible, hypodermics of the bichlorid or salicylate of mercury, and that this should be accompanied or followed with iodid of potassium and tonic measures. I attach special importance to the effect of hypodermic medication, though all the patients did not receive it. It is not always necessary to give large doses, i. e., gr. ¼ twice a week is sometimes enough, but this may need to be kept up for two or three months. In other cases gr. ii or even gr. iii once or twice a week are required. The technic requires care. During the course of treatment there should be a very liberal use of lukewarm and hot bathing (a warm bath every day and a hot bath once or more weekly), and every possible attention should be given to the general nutrition of the patient.

With these measures I believe that a good proportion of persons who are threatened with paresis can be permanently helped, and it is my hope that the medical profession will become trained to recognize these cases so quickly that before many years we may get the same gratifying results in paresis that we do in tabes.

I have to express my obligations to Dr. Carl Koller, Dr. Alex. Duane, Dr. Samuel Sherwell, Dr. Jas. K. King of Watkins, and Dr. Sollace Mitchell of Jacksonville, Fla., for referring some of the cases to me, for aid in treatment and for furnishing me special notes for the histories.

DISCUSSION.

DR. A. E. MACDONALD does not think that the diagnosis of the cases reported by Dr. Dana, except the first one, was conclusive. In such cases he looks for just such a suspension of the symptoms as described by Dr. Dana. He has often found it a very difficult thing to satisfy the friends of such patients that treatment should be continued because the improvement is so marked that they object to the patient remaining longer in the hospital and claim that he has recovered.

DR. ADOLPH MEYER said that it is difficult to say when general paralysis can be considered as established. The first case that Dr. Dana quoted was such as could give rise to little doubt, with its marked expansiveness, yet Dr. Dana took pains to describe it as one of but slight exaggeration of attitude of the normal Wall street man. A great deal of weight would have to be placed on forgetfulness and on inconsistencies. In one of the cases very little forgetfulness and no dementia was said to be present in the account of the case, but from a retrospective point of view, in the statement that the patient has recovered, he is said to have recovered from his dementia. The fact of there having been distractibility of attention before is then interpreted as a beginning dementia. It is exceedingly difficult to demonstrate with any certainty whether one is dealing with an actual deterioration of memory for several reasons. A physician should be especially cautious in the use of the term dementia when the only evidence is a certain feeling of insufficiency in the patient, an exhaustibility, and in the interpretation, as he may be influenced by the suggestion that the patient has had syphilis. One would naturally think that since general paralysis is a disease with a definite, generally slow evolution we should come across "*formes frustes*" which are merely approaching the period of decided development. The cytodiagnosis should be positive, a point of value, although the ordinary forms of syphilitic affection have also positive reactions and not only general paresis. The question of what constitutes paralysis has lately been brought under consideration by Nissl, who has split off a diffuse cerebral syphilis, and especially by Gaupp, who has lately reviewed carefully the cases of so-called recovery from general paralysis.

DR. L. PIERCE CLARK said that the histories of the cases Dr. Dana presented are suggestive of paresis and, in most of the cases, he thought all would reach the same tentative diagnosis. The final termination, however, would show the error in diagnosis. We must demand the established clinical entity of paresis, particularly mental deterioration. General paresis may present a period when deterioration is but slightly in evidence, possibly a diagnosis at such a time would more nearly approximate the contention of Dr. Dana. Dr. Clark's opinion in the matter of the curability of paresis centered on the question of early diagnosis. It has not been proven that such a diagnosis is yet possible. In his asylum experience, cases are often admitted so early in general paresis that another diagnosis is entertained for a long time, yet recovery never occurs. In such cases remission and non-progression of the disease is often present for several years, yet the cases ultimately terminate in paresis. If iodids and mercury are at all effective in suspected cases then the diagnosis of paresis is

doubtful. He has never known paresis to be favorably influenced by these drug agents. Improvement and remission, on the other hand, are brought about by general care, hydrotherapeutics, diet, rest and quiet, simple living. Paresis from a chemico-pathologic, as well as a clinical viewpoint, is a parasyphilitic affection, a postsyphilitic toxic disease. It is beyond the reach of antisyphilitic remedies, and it is important to remember also that in many undoubted cases of paresis these drugs do harm. He looked on Dr. Dana's first case as one of probable paresis with remissions; he thought the others were anomalous types of cerebral lues. He thought that the curability of early general paresis is mentally conceivable, but that we are very far from realizing its practical accomplishment at present; therefore, it may be classed as one of the most hopelessly incurable mental diseases.

DR. FLAVIUS PACKER said that those who are engaged in asylum practice must look on paresis as practically incurable. He has seen cases which presented long periods of remission yet they returned, and when he was satisfied with the diagnosis the incurability of the disease has never been questioned. One patient left the hospital and was away a year and a half when he returned.

DR. CARLOS F. MACDONALD thought that the correctness of Dr. Dana's attitude respecting the curability of paresis hinges on the correctness of the diagnosis. His view of paresis, or more properly, general paralysis of the insane, is that this is a form of insanity having a distinct entity and essentially different from any other form of insanity, just as scarlet fever differs from smallpox, having its own pathology and clinical history, with a characteristic combination of diagnostic symptoms which alone would warrant a diagnosis. Many writers speak of making a diagnosis of paresis without mental symptoms but he contended that this is a very difficult thing to do in any form of insanity. Without mental symptoms one can scarcely make a diagnosis of mental disease. Paresis, at the outset, has somatic symptoms which sometimes precede the fully developed mental symptoms. He has long since come to regard paresis as an absolutely hopeless form of disease so far as recovery is concerned. He is inclined to question the correctness of Dr. Dana's diagnosis made in the predeveloped stage of the disease if those patients fully recovered. The first case cited struck him as being a well-marked, almost typical case of paresis, both as regards the mental and the physical symptoms. He would regard the patient's declarations as evidence of a pronounced delusion; also that he was in the delusional state was shown by his manner and appearance as described. Dr. MacDonald has never known a complete and permanent recovery from true paresis, and he has been led to doubt the diagnosis in many cases, but he has never known an authentic recovery from paresis. Those cases that have recovered were in his opinion not true, but pseudoparesis, probably of the syphilitic or alcoholic variety. He asked Dr. Dana how he would classify those cases which are described and classified by most writers, as pseudo general paresis, either alcoholic or syphilitic. He said that in a considerable number of cases it is doubtless true that syphilis must be regarded as an etiologic factor, but there is a certain proportion in which syphilis does not enter as a cause. He could not understand how one would be justified in assigning syphilis as a cause in those cases in which there is no evidence whatever of syphilis in the history. He quite agreed with Dr. Dana that occasionally, though rarely, cases of paresis improve, both mentally and physically, sufficiently to enable them to return to their homes and to resume their business and social relations for a time, but in his opinion, such cases never make a true recovery, and if the diagnosis has been correct, they invariably relapse and eventually terminate fatally.

DR. WILLIAM HIRSCH thought that, up to the present time, the feeling in general has been that general paresis is an incurable disease. He has always taken the standpoint that when a case has been diagnosed as general paresis and, after a reasonable time, the patient seemed to get well, that a wrong diagnosis has been made.

The question whether general paresis in the early stages is a curable disease or not should not result in *a priori* statements before we have absolute evidence for calling it an incurable disease. He regarded the first case as one of remissions and did not agree with Dr. Dana that with these remissions the patient may recover so long as the remissions remain; he regarded the remissions as only a partial recovery. He mentioned one case in which the patient has been treated in an institution many years. The patient was an officer in the German army and had a clear case of general paresis. He had all the classical symptoms. He was engaged to the daughter of a general. After six months he had his remission; it was such that his family insisted on his going home and he was, therefore, discharged. The family was told regarding his condition, that he was not cured but only had a remission. He asked permission to marry but did not seek medical advice. He married and remained apparently well for one year and his wife gave birth to a healthy child. After one year the disease developed and he died within a year of general paresis. During this one year he had been perfectly well, all the somatic and mental symptoms having entirely disappeared. This is only one of many cases that he could report where the remissions have been such that nobody could find any symptoms of any kind. The minds cleared up perfectly. He believed that one should be extremely careful in drawing any conclusions as to the curability of the disease and one should demand that three or four years should elapse before drawing any conclusions.

In Dr. Dana's second case one should consider the differential diagnosis between general paresis and lues cerebri and this is often very difficult. Some of the cases present all the classical symptoms of cerebral syphilis and some of cerebrospinal meningitis. One of the chief differential points relates to the reflexes: when there is a difference in the patellar reflex the point is in favor of syphilis. In general paresis, the patellar reflex is exaggerated or absent. The same applies to the pupil reflexes. The diagnosis of general paresis and of syphilis is extremely difficult especially during the early stages. If the patient recovered under antisyphilitic treatment he would always leave it open whether or not the case was one of cerebrospinal syphilis. He said that he is a firm believer in the importance of syphilis as an etiologic factor in these cases but undoubtedly there are cases of general paresis in which there is no history of syphilis at all. He referred to a patient from San Francisco who had general paresis; in this instance it could be proved beyond a doubt that there was no history of syphilis. He said he knew of several cases where syphilis was not ony denied but it could be proved that it was not present. If it were necessary to demand mental deterioration in making a diagnosis of the early stages of the disease, one could never make such a diagnosis. He believed that physicians, as a rule, are proud of the ability to make diagnosis of general paresis so much earlier than they did twenty or thirty years ago. The question should be left open whether or not general paresis is curable.

DR. ALLAN MCLANE HAMILTON said that, so far as his experience goes, he has never seen a case of true general paresis cured. The cases that have recovered have been those of alcoholism, the pseudoparesis of Fournier, and obscure examples of drug habits. He could not imagine such serious conditions as those described by Dr. Dana with profound organic changes, and generally absent deep reflexes, where the treatment employed, or in fact any other, could have given such astonishing results.

DR. CHARLES L. DANA said that he believed that a more conservative view must be taken of this question of the curability of paresis and he thinks that most of the criticism of his position is based on misapprehension. He used the term cured or arrested with reference only to the early stage of paresis, a stage for which the term preparetic may be applied. He had seen personally a large number of patients in whom the symptoms described in his paper occurred but then had gone on to develop general paresis in spite of treatment in some cases, or without any treatment in others. If one would go back in the history of two paretics two or three years before the patients reached a hospital one would find, in a considerable

proportion of cases, that they had had precisely the same conditions he had described in his paper; and he believed that it was the duty of psychiatrists and neurologists to be able to recognize the condition in the early stages when it is possible to stop the progress of the disease. He does not believe that they are able to stop the disease in any case unless it is diagnosed early. He does not claim that the cases he reported are real cases of general paresis as ordinarily described but only that they would become so. He agreed with Dr. MacDonald that when paresis is in full bloom it is an incurable disease. He said that he hesitated to bring up the subject of the relation of paresis to syphilis because he thinks the subject is a closed one. He believes that it is generally accepted that syphilis has the same relation to paresis that it has to tabes. Every year the proportion of cases of syphilis and paresis increases, and for practical purposes syphilis may be considered the chief factor in its production. In alcoholic pseudoparesis there is a sort of chronic mental deterioration or dementia and he prefers to call these cases alcoholic dementia rather than to use the term paresis, because these cases do not present any close resemblance to the picture of paresis. Syphilitic pseudoparesis is really an exudative cerebral syphilis taking the form of a general syphilitic meningitis or arteritis. Cases of so-called pseudosyphilitic pseudoparesis sooner or later develop a true paresis. Some of the cases he thinks it would be better to term organic dementia of syphilitic origin. He said that regenerative processes are not always progressive. He has even seen cases of progressive muscular atrophy of a typical kind arrested for years. In answer to a question Dr. Dana said that loss of the knee jerk is a clinical fact and that it is probably explained by the fact that there has been a syphilitic lymphangitis or exudate, and that when this is absorbed the reflex returns.

In answer to another question he said that in tabes sometimes there is both a degeneration and an exudation; the antisyphilitic treatment would remove the latter and the reflexes then would be restored.

DR. MACDONALD assumed that the symptoms of true paresis are both outward expressions of organic disease in the central nervous system, that is, in the central cortex and asked Dr. Meyer if it would not follow that the condition would necessarily be an irrevocable one?

DR. MEYER said that is the burning question, especially since the investigations of Alzheimer and others have divided off a new process as a diffuse cerebral syphilis, distinct from the condition of a general paralysis process. Since these investigations the whole situation has been made more complex. Dr. Meyer stated that he believed with Dr. Dana that we should give all our attention to therapeutics, even though general paralysis be probable, and that we should at least strive for a remission as if the disease could be cured. He has doubts whether these really curable conditions are accompanied by the typical changes of paresis and can be verified anatomically. On the other hand, he has not had any cases of general paresis that he could vouch for clinically without showing definite changes in the central nervous system, organic changes with participation in it of the blood vessels, neuroglia, derangement of certain elements in the cortex, etc. He mentioned a patient of Dr. Howard, at the Rochester State Hospital, who had "general paresis" for two years, and who then passed into a paranoic condition with marked expansiveness and some paralytic symptoms of inconsistency, etc. When this patient was examined by Dr. Meyer a few months before he committed suicide, there still were a certain number of symptoms that could safely be classed as belonging to general paresis.[1] In this case there was only a residual of the disease process to be found, both clinically and in the microscopic examination. He said we must further admit that occasionally there are cases of protracted type, cases of general paralysis that cannot truly be described as "progressive" general paralysis, cases that become arrested for from ten to fifteen years or even more. Hence, we should not, *a priori*, exclude the possibility of a lasting remission at the outset.

DR. DANA said that if the earliest symptoms of general paresis could be recognized it might be possible to arrest the process and the patient might become practically a healthy man; i. e., if the brain cells were not sufficiently destroyed by the paretic process to interfere with a sound mental action.

DR. MEYER said that nature is evidently vicious regarding that point. The important point about general paresis seems to be finding out what makes general paresis a progressive disease. If one could determine that, much would be gained. But at present nothing of that sort is at hand.

DR. DANA argued that there is an allied condition in tabes; in tabes the diseased process can be arrested and the patient have no more than simple tabetic pains.

DR. HIRSCH stated his belief that in general paresis as well as in organic diseases the clinical symptoms preceded what is called the anatomic changes. It is a fact that in very early stages when the clinical symptoms are developing, the microscope does not reveal changes in the tissues.

1. A self-satisfied, unreasoning, expansive delusional system with peculiar inconsistencies, inability to give the date of marriage or the year of the birth of a son, slight hesitancy of speech, tremor of tongue, no elbow or thumb reflex on the left, exaggerated knee jerks, no eye symptoms, unsteady writing with omission of letters.

PNEUMATOCELE OF THE CRANIUM.*

L. L. MCARTHUR, M.D.
CHICAGO.

In calling attention to pneumatocele of the cranium I do so not with the idea of conveying some new or important information or advanced treatment, but rather to recall to mind a decided rarity, if we may judge from the few recorded cases, and to make easier, perhaps, the recognition of future cases.

What I can at least offer is the record of an additional case and a thorough résumé of the literature, which I will present as briefly as possible, with a synopsis of all recorded cases. These number as yet but 33, of which 23 were occipital, 10 frontal. With a full bibliography added it will be an easy matter in the future to make reference to this subject.

Patient.—A. C., aged 63, was admitted to the hospital May 26, 1902, and was operated on June 17, 1902.

History.—Two years ago the patient noticed a small tumor mass about the size of a bean just above and behind the ear; it grew to the size of an egg. It was lanced by Dr. Frank, but reappeared in four days and since has gradually grown to the present size. When the tumor is pressed the patient says "it feels like air coming from the ear." He has pain all the time over the tumor. He says that he can not hear from left ear; he never had earache.

Examination.—His general appearance is that of an aged man of good build. His muscular system is somewhat flabby.

Head: The eyes react to light and to accommodation. The right eye has a nebula on the cornea; the left eye has pterygium extending over the edge of the cornea.

Mouth: The upper teeth have nearly all disappeared except for a few roots. The tongue has a whitish coating.

Cranium: Over the left portion of the cranium, over the posterior inferior portion of the left parietal bone, over nearly the entire occipital bone and over the posterior portion of the left temporal bone is a large bulging tumor. The scalp covering is very tense but can be compressed against the bone beneath. A hollow tympanitic note is elicited on percussion. There is no fluctuation and no pulsation. The bone beneath seems thinned, and in some places small fragments can be moved about. No cerebral symptoms appear when pressure is exerted on the scalp. The contents of the tumor are not reducible. There are three areas where the bulging is more marked, as if there were separate compartments, and there is some pain on pressure.

* Read at the Milwaukee meeting of the Western Surgical and Gynecological Association, 1904.

Thorax: The chest is large and barrel-shaped. Respiratory excursions are somewhat restricted. There is a prolonged expiratory sound, but no râles.

Heart: The area of dullness is diminished, and is covered by lung tissue. A loud systolic murmur is heard over the entire chest with its maximum intensity along left border of sternum.

Abdomen: Negative.

Left Inguinal Region: There is a large oblique inguinal hernia which is easily reducible. A distinct impulse is imparted. There are very large external and internal rings.

Extremities: In the left lower extremity there are evidences of a previous osteomyelitis of femur. There are a number of cicatrices on thigh. The knee and ankle are both ankylosed, and there are a number of scars around the ankle. Reflexes are sluggish.

Glandular system negative.

Operation.—A long incision was made over the tumor mass, on the left side of the head, from the mastoid process toward the parietal eminence. As the incision was continued in depth the entire mass collapsed, the contained air escaping. Underneath the scalp and springing from the bony vault were numerous exostoses, giving a honey-combed appearance to the cavity. These exostoses were chiseled away and removed. At the mastoid process an excavation was found with a fistulous tract which, on being probed, could be distinctly felt to lead through to the external auditory canal. Considerable hemorrhage was encountered, one vessel deep in the bone requiring tamponing to arrest its bleeding. A counter opening was made in the scalp toward the right side. A large strip of iodoform gauze was packed through this opening and through into the first opening. The entire wound was left open and packed with iodoform gauze. A recurrent head bandage was applied. The patient was in good condition on being put to bed.

June 18, wound redressed; June 19, wound repacked; June 21, packing partially removed; June 23, remainder of packing removed; June 25, head redressed; June 27, head redressed; wound packed with iodoform gauze; Thiersch dressing applied; June 29, head redressed; discharge somewhat purulent; July 1, head redressed; July 3, head redressed; July 4, head redressed; July 6, head redressed; discharged.

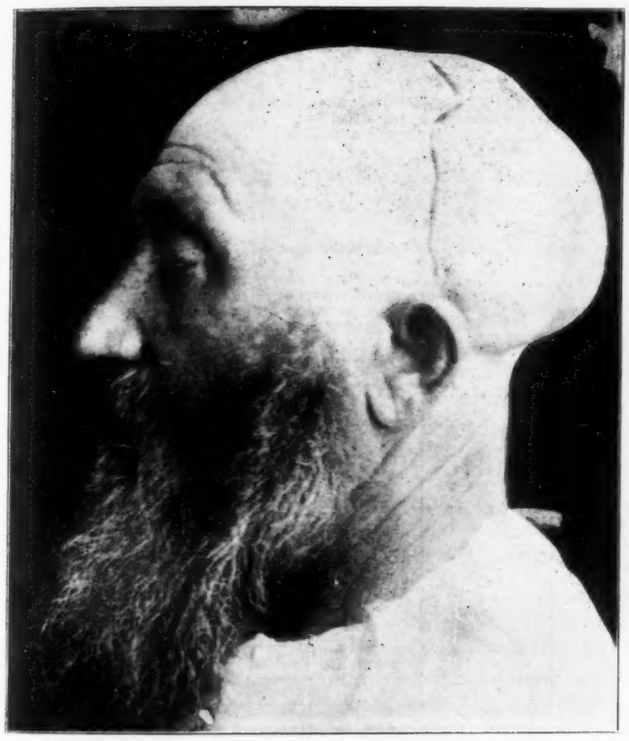

Fig. 1.—Side view.

Fig. 2.—View from above (forehead resting on table).

DEFINITION.

Pneumatocele may be defined as a gaseous tumor of the cranium, a term proposed by Chevance de Wassy as being the more proper surgical name with which to replace that of *"tumeur gazeuse"* or *"tumor flatulans,"* that had been used in the four previously recorded cases. The term should not be confused with the condition now described as emphysema of the scalp, from which it differs in being one air-containing sac, while emphysema consists of numerous finely divided bubbles of air in cellular tissue. Nor should it be confused with pneumocele, which applies only to hernia of lung.

These tumors have for their external wall the skin and periosteum and all tissue between. They have been observed almost invariably in two positions. First, over the mastoid region and occiput; second, over the frontal sinus and forehead. By some authors they are described as pneumatocele occipitalis and pneumatocele sincipitalis.

DIAGNOSIS.

For developmental reasons these tumors are never found in the first decennium of life.

They vary in size according to their age. They have been described from the size of a hazel nut to an enlargement sufficient to give the head a circumference of 2½ feet. Because of the varying degrees of attachment of the periosteum to the bone they assume irregular shapes, giving a grotesque appearance to the patient, as accompanying photograph will demonstrate. The irregularity is chiefly determined by the stronger attachment of the periosteum at the sutures.

When complications are absent, the tissues covering these tumors retain a normal appearance, neither reddened, edematous nor inflamed.

These tumors are not usually sensitive when palpated, and give a sense of extreme elasticity or of exaggerated fluctuation. They do not pulsate. On pressure, such as

TABLE OF CASES REPORTED TO JANUARY, 1905.

Author.	Location of Tumor.	Sex and Age.	Special Senses Affected. Dizziness, Etc.	Origin.			Treatment.	Result.
				Traumatic.	Inflammatory.	Spontaneous.		
Lecat, 1741....	Began below right ear, later covered two-thirds of skull.	?	Hearing (?)...	.....	.....	Unknown. "Scrofulous t'mp'ram't." Cause unknown.	Large incision; caustics..	Death after 133 days from sepsis.
Olof Acrel, 1777	Over frontal to malar bone.	Boy.	"Heaviness in head."	.....	.....	After lifting heavy w'ght.	Pressure	Recurrence on removal of pressure.
Lloyd, 1779....	Junction of sagittal and lambdoidal sutures.	F 35	Dullness, stupor, vertigo.	Fell from horse eight years previously.	.....	.....	Incision; lint poultice. "Healed in 3 weeks."	Recurrence after 7 months, finally cured.
Pinet, 1833.....	Occipital; later like "enormous turban."	M 33	?	.....	.....	"No appreciable cause."	Successive punctures, incision and setons later	5 months later still carrying seton. All but small area adherent.
Chevance de Wassy, 1850-51	Behind left ear. Extended later over vertex nearly to right ear.	M 33	Hearing. "R'mbli'gs" in the ear.	Fall from tree "resulting in fracture of wall of tympanum" (?), ("Of 'Rocher' at level of ear drum.")	.....	.....	Punctured at first, later opened and seton inserted. Abundant suppuration.	Recurrence after 2 months, seton again and after short time complete cure.
Belassa, 1853..	Right side of head. Later another over parietal bone.	M 16	Hearing.....	.....	.....	"Lymphatic constitution."	Incision, permanent gutta percha canula. Compression.	Erysipelas and abundant suppuration followed by cure after from fifteen to twenty weeks.
Voisin, 1858...	"Back of right ear." Became occipital and parietal.	M 57	None mentioned.	.....	.....	"Painless development."	Incision and compression	Suppuration with final cure.
Costes, 1859...	Over right ear; occipital.	M 57	None mentioned.	.....	.....	"Painless swelling."	Incised, lint wick, suppuration.	Cure.
Guthrie	Frontal.....	?	?	"Frontal sinus wound."	.....	.....	Compression.....	Result not stated, probably negative.
Duverney	Frontal "to middle of nose."	F	Smell ?.....	.....	Inferior maxillary and nasal bone necrosis.	.....	Incision.....	Cure after 12 days.
Sante Foi	Frontal, extended below orbit.	F 12	Smell ?.....	.....	Nasal inflammation.	.....	Compression.....	Cure after 6 weeks.
Ribeiro, Vianna, 1862.	Occipital, began behind left ear.	M 20	.....	.....	Slight auditory canal inflammation following "prick" some mos. before.	.....	Cross incision and curette; cure for 3 mos., reappearance followed by compression.	Recurrence.
Warren, 1862..	Frontal	?	? Pain in side of head.	Blow on head by tree four years before. Irregular loose masses of bone.	.....	.....	Several operations, removal of bone fragments.	Not known. "Condition poor when last seen." "Brain symptoms at times." "Recovery after removal of last fragments."
Denonvilliers 1866. Rep'ted by Thomas.	Right occipital, over large area.	M 29	"Bruit." Later some deafness in right ear. A previous attack of vertigo and unconsciousness.	Kicked in he'd by horse at 12 years of age; later head symptoms.	"Never had otitis."	.....	Trochar, compression....	Small local swellings persisted, also occasional attacks of vertigo.
Fleury, 1867-68	Occipital, mastoid right.	?	"Bruit" vertigo.	"No history of trauma."	"No infection."	Evidently.....	Puncture, lint; became purulent.	Death, following edema of face and throat.
Jarjavay, 1869.	Right frontal, extended to border of occipital.	M 25	Sight and smell affected; hearing intact; headaches and vertigo.	History of severe fall 7 years previously.	.....	Headaches (frontal) from 9 years of age.	Punctures, incision and canula. Abscess and counter openings.	"Cure, but there remained a permanent fistula to frontal sinus."
Krabinski, 1869	Frontal left.....	M 46	Sight (from swelling).	.....	.....	Spontaneous at first; recurrence attended by nasal and frontal sinus inflam'ation.	Puncture drain and compress. Later a small "pelotte" was applied and fastened by rubber band. Later recurrence, sequestrum removed. Large compress.	Probably not a cure.
Schmidt, 1871.	Mastoid occipital.	M	Hearing ?.....	.....	Typhus and otitis media; irrigations, etc. Politzer and Valsalva's procedures.	Says exact cause not known.	Pressure bandage.....	"Cure after 8 days."
Wernher, 1873.	Mastoid occipital; "whole right half of hairy part of head."	M 20	"Noises." Hearing somewhat impaired.	.....	.....	Evidently, though followed by violent sneezing	Iodin injections.....	Cure.
Mazzoni, 1874.	Behind ear. Left occipito-parietal boundary.	M	"Hearing intact."	.....	.....	Evidently.....	Drain and "cerat" plaster pressed down on skin.	Recurrence; probably not final cure.
Birnbacher, 1881.	Frontal (right)...	M 17	No interference with vision.	.....	Frontal sinus disease	.....	Puncture and drainage..	No return for 2 years.
Brunschwig, 1883.	Above and behind ear, right side.	F 15	.....	Swelling increased after a fall on head.	Also accentuated by "cold in head."	Spontaneous at first.	Repeated punctures and compression.	Cured.

TABLE OF CASES REPORTED TO JANUARY, 1905—Continued.

Author.	Location of Tumor.	Sex and Age.	Special Senses Affected. Dizziness, Etc.	Origin.			Treatment.	Result.
				Traumatic.	Inflammatory.	Spontaneous.		
Turner, 1888...	Over right mastoid process.	F 20	Audition negative.	Fell from sofa and struck right side of head 2 years before.	.....	.....	Incision, irrigation with 4 per cent. carbolic acid solution. Tampon of iodoform gauze; compression. Drain removed 5th day.	Complete cure after 13 days.
Sonnenburg, 1889.	Behind right ear. "More over parietal bone."	F 12	Evidently none	.....	.....	No cause known.	Long incision and tampon.	Cure after some weeks.
Von Helly, 1890	Left side over frontal bone.	M 28	Headaches....	Blow over right eye 7 years before, followed by loss of vision.	Nasal discharge 3 years before; later ozena and erysipelas.	.....	Left hospital when erysipelas disappeared.	"Appeared to be a complete cure."
Kramer, 1896..	Occipital. "Opening more than centimeter back of mastoid."	M 28	"Hearing normal."	Blow in back of head four weeks before	.....	.....	Incision, compression; recurrence. Iodin and gauze, recurrence; plastic with flap.	No recurrence for 6½ months.
LeDentu, 1896	Frontal.....		.....	Fracture of skull by fall 20 days before.	.....	.....	Incision, some pus trephined.	Not known.
Launois, 1897	Mastoid. "Swelling back of ear."	31	?	.....	Suppuration in ear for several yrs.	.....	Tumor became inflamed..	Unknown.
Nove, Josserand and Carle, 1897-98.	Mastoid both sides, right the larger.	M 31	"Very nervous." Vertigo marked; slight deafness.	.....	"No evidence of mastoiditis."	Neuralgic pains about ears at 11 years; no discharge.	Incision was followed by air bubbles and small amount of pus. Antiseptic dressing.	"Radical cure." "Case of inflamed pneumatocele."
Malapert, 1900 ('85).	Right mastoid....	M 44	Hearing impaired.	.....	Purulent discharge from auditory canal sometime before.	.....	Considered an abscess and lanced.	Not known.
Martel, 1901...	Occipital. Began as two umors, one in temporal region.	M 26	Impaired audition, headaches and vertigo.	.....	.....	Evidently	Punctured at first, recurred later; drainage by seton with counter drain, compression, large opening later; external plate removed and mastoid process uncovered, iodoform gauze and tube for drainage. "Minerva" later applied.	"Left hospital on road to recovery."
Strom, 1902....	Left temporal and parietal.	M 19	Hearing somewhat impaired.	.....	"Catarrh in nose for years."	.....	Bow-shaped incision; curette and chisel, removed outer lamella of mastoid process, drainage.	Cure. (No return in 2 years.)
McArthur, 1904	Left occipital and parietal.	M 63	Impaired hearing.	.....	.....	Spontaneous..	A former puncture with recurrence. Incision, chisel and curette, wound left open and packed with iodoform gauze.	Cure. No recurrence in 2 years, still has impaired hearing.

Total: 33 cases. Location: 23 occipital; 10 frontal. Sex: Male, 22; female, 6; unknown, 5. Age: 12 to 66 years. Traumatic history, 10; inflammatory history, 10 (3 traumatic also). Spontaneous, 16. Result: Cure, 17; recurrence, 6; doubtful, 8; death, 2.

might be used to reduce a meningocele or to collapse an angioma or varix, the tumor mass often will diminish in size. The patient frequently hears a sound as of rushing air or water in the ear when the tumor is occipital, and in the nose or throat when frontal. When tense, the tumor gives such a sense of fluctuation that the surgeon frequently thinks that he has to deal with a fluid collection. This idea is opposed by the finding of a bony outgrowth or ridge at the line of juncture of tumor with the normal scalp, for if the tumor has existed for some time there will be found a distinct bony elevation rising from the normal cranial wall on to the surface of the tumor to the distance of from one-fourth to one-half inch. The margin of this ridge which joins the elevation is serrated, sharp and irregular. In those cases in which the size of the tumor can be reduced by pressure one can also feel through its coverings numerous bony irregularities, elevations and depressions over its entire base. Efforts on the part of the patient to inflate the middle ear, or the use of the Politzer bag, will usually restore the size of the tumor. It is sometimes possible after the temporary reduction by pressure of one of these tumors to feel the opening into the sinus of the mastoid process. They are dependent for their occurrence on connection with air-containing sinuses.

Auscultation is negative. Percussion offers the most important diagnostic sign, for one obtains thereby a highly exaggerated tympanitic note. In this location, however, percussion is the procedure in the examination least likely to be made, for one expects to obtain no other than a flat note and therefore omits the test.

PATHOLOGIC ANATOMY.

Pneumatoceles, then, being tumors produced by air dissection of the periosteum from the bone, will have for one-half their lining periosteum, for the other half bony wall. This periosteum, being normal, retains its natural ability to produce bone. Hence, at the junction of the periosteum with the calvarium a bony ridge forms. This ridge marks the outlines of all long-standing pneumatoceles. From varying points of the thus elevated periosteum strands of tissue still connected with the bone remain. Along these strands osteophytes may form which, if the tumor be opened, will appear like stalactites and stalagmites, and in this way are produced those irregularities that can be felt when the tumor has been collapsed by pressure.

The air entering into the formation of these tumors, just as in the analogous condition of emphysema, is usually sterile and therefore remains as a simple non-irritant.

Chevance de Wassy and others took pains to have careful analyses made of the contained gases and found

them to consist of nitrogen 87 per cent., oxygen 10 per cent. and carbonic acid gas 2 per cent. The proportion of oxygen, being small, led him to believe that the gaseous mixture was not air.

We now know, experimentally, that if air be injected into one of the body cavities its oxygen will be readily absorbed, while the nitrogen remains for a long time. It is probable that air so injected, by a process similar to the exchange of gases in the lung, would gain in carbonic acid gas what it lost in oxygen. This the investigations of LeComte have experimentally demonstrated.

ETIOLOGY.

In the few exhaustive memoirs on this subject, the writers have considered the various modes of formation of these tumors. The more logical deductions have pointed to a destruction of the bony walls, traumatic, inflammatory or spontaneous, and have rather dismissed as untenable both the congenital defect idea and that of an escape of air through vessel foramina. Theoretically, it is conceivable that the bony wall of either the frontal sinus or of the mastoid cells could be of such parchment-like thinness congenitally as to give way under unusual pressure from within or without. We do know that in later adult life the walls of these cavities atrophy or become so thin that this could occur, and possibly some of the pneumatoceles described as spontaneous may have had such an origin. The suggestion by Helly that it would be possible for gas to escape from either frontal or mastoid cells through vascular bony foramina seems unlikely, for, during the existence of the blood vessels, these foramina would be filled by them, and in processes which resulted in vessel obliteration there would be left behind the obliterated structures to occlude the foramina. It sometimes happens that the squamous mastoid fissure in the process of development fails to unite, and in such a way one case is believed to have been caused. In one case (Kramer) the pneumatocele was found over the occipital prominence. At the operation, after careful search, the air was found to have followed along the bony suture to that point from the mastoid process.

While the real causes in a few cases are obscure, in the great majority of cases we have one of two etiologic factors that can be elicited by the clinical history: 1, trauma; 2, sudden increased pressure within the buccal and oral cavities. The trauma in 10 cases has been by direct violence; in 10 cases by the changes which inflammatory processes within these bony cavities could easily induce—that is, the outer bony shell can be easily fractured without tearing the periosteum, or can be readily absorbed by inflammatory processes, can become carious, or can disappear by direct pressure from granulation tissue or new growth, leaving the periosteum intact. When to such a condition we have the added factor of a sudden decided increase in the air pressure within the mastoid or frontal sinus, this intact periosteum may be elevated and dissected loose by the burrowing influences of the escaping air, and finally there may result the formation of a tumor of varying size and form, the contents of which is simply air.

Instances are related in which sudden violent efforts, as in the case of a baker lifting a barrel of flour, or a hostler struggling with a vicious horse, have made the increased pressure necessary to make the bony wall give way—or, if already missing, to elevate the periosteum. Nevertheless, 16 (about 50 per cent.) of the cases collected have occurred spontaneously so far as history of injury or of inflammatory conditions go.

During the growth of the tumor the patient not infrequently will hear—on efforts at sneezing or blowing the nose or inflating the ear after Valsalva's method—the escape of air into the tissues back of the ear, with a corresponding increase in the size and tension of the tumor. He will sometimes call attention, too, to the possibility of reducing this by a reverse process of pressure on its surface. It is easily conceivable why many of them can not be so reduced, for the periosteum lying over the mastoid or frontal sinus may remain so nicely in apposition with the opening through which the air escapes that it will act like the valve of a bellows or Davidson's syringe—rising readily to permit ingress of air to the tumor cavity, but falling flatly against the orifice to prevent its exit.

The partially collapsed tumor can be artificially filled with air by use of the Eustachian catheter and the patient himself may accomplish the same result by attempting to blow hard when his nose and mouth are closed.

TREATMENT.

Since the majority of these tumors were observed in the pre-antiseptic era, it is easily understood how considerable differences of opinion arose as to the best methods of handling a growth perfectly benign in itself, but capable of very disastrous results if not protected against infection. The following procedures have been carried out at different times: 1, compression; 2, puncture; 3, opening and packing; 4, osteoplastic resection. Since, in a fair proportion of the cases observed, it was possible to reduce the size of the tumor by compression, varying methods of this were tried. There was temporary success in some cases, but frequent recurrences. The usual method was to pad the tumor well and then, by means of bandages of muslin or caoutchouc, to maintain continuous direct pressure. After some weeks of this treatment, in a few cases, it was found possible almost to obliterate the tumor but the distress was so great to the patient and the recurrences so frequent that other means of treatment were sought. Aspiration through a hollow needle was made and this was followed by compression. The results tallied nearly with those of compression alone, unless infection followed, as was to be expected in pre-antiseptic days.

During the period that puncture was popular, many of the observers noted that their needles, after passing through the tumor coverings, came in direct contact with denuded bone. Gaining thus the idea of a caries or necrosis existing, they proceeded at once to treat the imagined bone disease after the methods then employed. Laying open the sac, air would escape and the peculiar elevations described as resembling stalactites and stalagmites would be scraped away or chiseled off and the wound packed with charpie or lint. This was promptly followed by an abundant suppuration, violent infection and sometimes death. As said before, we now recognize these bony irregularities as simple osteophytes and exostoses due to the displaced bone-forming elements of the periosteum. One author (Wehrner) demonstrated the possibility of cure in his case by the injection of tincture of iodin. Beginning at a point distal to the mastoid, he practiced an injection of a few minims of iodin and applied compression. This resulted in a partial obliteration of the walls at that point. Following this by a series of injections extending over a period of two

months, he succeeded ultimately in causing aseptic adhesions between the tumor walls, having allowed, prior to the injection, the escape of air through his needle or back through the channels through which it came.

We understand now why the third method of treatment—that of boldly laying open the gaseous cavity—became so disastrous a procedure, for we know the dangers of a suppurative process which has extended to the mastoid cells. Since the era of antiseptic surgery, these dangers have been so nearly dispelled as to render the general opening of these cavities a safe procedure and, in nearly every instance, a perfect cure is effected if pains be taken to so dispose the incision as to make the point of final healing immediately opposite the bony perforation through which the air entered the tumor. In my case it was easily possible to find the openings in the mastoid process, to enlarge them, and, having removed the major portions of the osteophytes and bony ridges, to bring the walls of the gas-containing cavity in contact, and by simple compression to secure their adhesion to those surfaces from which they had been torn.

Some writers (Sonnenberg, etc.), after opening widely such cavities, have been unable to demonstrate the existence of any perceptible opening in the mastoid process—even though they allowed the patient to come out of his anesthesia and made either inflation of the Eustachian tube or had the patient repeat the process by which he formerly had been able to drive air into the tumor. The failure of the patient's efforts to force air through these openings may be rationally explained. By the time he was sufficiently awakened to make the effort the openings were probably plugged with clotted blood.

For the convenience of future investigators of this subject and of those desiring to consult the original literature, I have appended a table giving a synopsis of the salient features of each reported case from which, by easy deductions, the percentage mortality, the prevailing treatments, the more frequent location and what associated special senses were disturbed can easily be ascertained. A list of the literature consulted is likewise appended.

Costes of Bordeaux, reporting the fifth recorded case and making an exhaustive study of the four preceding cases, prepared so excellent a memoir on this subject that in all details except treatment he has covered the ground completely and the conclusions which he arrived at in 1859 still hold absolutely true for the present time. They are as follows:

1. Pneumatoceles are very rare.
2. They always depend on perforations of the bony walls.
3. They are always tympanitic.
4. They are more or less reducible by pressure.
5. They can take their origin from the mastoid or frontal sinuses only.
6. They are of very slow and indolent formation.
7. They are never dangerous except from complications (infections).

In conclusion, I desire to acknowledge the very able assistance rendered me by Dr. J. C. Hollister in reviewing the literature of the subject and in collecting the data.

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THE PROTECTION OF THE ROENTGEN RAY OPERATOR.

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The serious nature of the injuries which have been inflicted on two expert Roentgen ray operators, and which necessitated the amputation or partial amputation of both hands, should be sufficient warning to all engaged in the the employment of this powerful agent. A further word of caution seems necessary, however, as many operators who have had no experience are entering the field.

The claim made by the manufacturers of static machines that these do not, or are less liable to, produce serious injury has proved fallacious. It is a dangerous doctrine, as it engenders a false sense of security. One of the physicians, who has practically lost both his hands, did most of his work with a static machine.

The Roentgen ray is itself the effective agent or the transmitter of that agent to the tissues. The injury or the good results only where it is applied. The same caution must be observed by the operator in handling the Roentgen rays, no matter what their source.

The more powerful the source of energy the greater will be the danger, but that danger exists wherever effective Roentgen rays are present. The danger is the greater because the injury is produced insidiously and does not make itself manifest for two or three years after the operator commences his work.

The injury is done slowly and insidiously. There is a gradual accumulation of injurious effects, and when the lesion manifests itself it is in a chronic form, with the formation of slow, indolent ulcers and horny, corn-

like growths on the dorsal aspect of the fingers, and a cracking and brittleness of the nails. There is at times intense itching and acute pain. The slow, tedious process of trophic change will go on and the lesions will grow worse as long as the cumulative or latent effect is present. Recovery is always tedious, if it ever takes place, while a true malignant growth may become engrafted on the devitalized and irritated tissues.

The unconsciousness of danger makes it the greater. Because the injury manifests itself slowly the victim feels secure, and before he realizes it a chronic trophic lesion has been produced. Since the injury manifests itself slowly, its full extent can only be determined by time. Complete relief or protection from further injury does not stop its course nor lessen the injury already produced.

These factors make the warning more imperative, and the need for care and for the employment of every precaution greater. Text-books on this subject do not give the protection of the operator enough attention, nor do they warn the student of the dangers he must avoid or tell him how to avoid them. In a recent standard work on the Roentgen ray, the author advises his readers to test the quality of the rays they are employing by observing their hands on the fluorescent screen. More dangerous advice could not be given to the student. The operator's dermatitis is due, in a majority of cases, to this practice, which was generally employed before its dangers were known. On the other hand, this method of determination is both crude and inaccurate.

The acute dermatitis produced on the patient does not possess the elements of danger found in the operator's chronic trophic lesion. There is practically no danger to the patient who is exposed a few times for diagnostic or for therapeutic purposes.

The lesion does not develop in the operator for two or three years, and then only after constant exposure. Day after day he is subjected to almost constant doses of the most potent alterative and stimulant agent of cell metabolism that has ever been introduced into therapy. The autolytic action of the cells is stimulated constantly, karyokinetic changes, metaplasia and hyperplasia follow, and, under continued stimulation of their autolytic action, the production in the cells of malignant growths may follow; though I do not believe that they must necessarily follow. The hyperplasias are no more malignant in their nature than overgrowths of epithelium in any other portion of the body. These may be either benign or malignant, and those produced by exposure to the Roentgen rays likewise may prove to be benign or malignant. This, in a measure, may depend on the amount of alterative, irritant or stimulant that has been applied in producing the lesion.

The production of malignant disease in the hands of operators by this agent leads to the conclusion that malignant disease can be produced by the overstimulation or protracted irritation of normal tissue cells by this agent.

Beneficial results in the therapeutic application of these rays can only be secured after diligent and patient observation by the student. The essential technic for accurate radiography or for effective radiotherapy is the result of long and careful study and clinical experience. The operator must be constantly near the tube and must be carefully observant of its action, for he must know all its moods and whims if he would use it effectively. He can not do this with safety to himself unless he realizes fully the dangers that must be avoided. He must observe the utmost caution and must never enter the irradiated field with any part of his body.

It is practically impossible for the operator to protect himself by wearing impervious clothing or shields. Various cloths impregnated with opaque metallic salts have been devised, but they are necessarily so clumsy as to preclude freedom of movement and deftness of manipulation.

The most practical method is to limit the irradiated field by covering the Roentgen tube. The field of its action can thus be confined to the part of the patient to be examined or to be subjected to treatment. Many shields with varying diaphragms have been devised to protect the patient, but they leave the operator unprotected and constantly exposed to the rays.

The placing of the tube in an opaque box has been suggested by many authors, and, among the first, by Williams of Boston. I have used the following simple device for over two years and it has proved very satisfactory; its chief merits are efficiency, simplicity and cheapness; it can be made by any operator and used with any tube:

A pasteboard box three-eighths or one-half inch wider than the diameter of the tube is cut at the ends to admit the tube. There is a round opening through which the prolongation of the cathode end can extend and another at the anode end, which can be reached by a cut through the intervening pasteboard. The box is suspended from the ends of the tube and surrounds only the bulb. It can be held in place by rubber bands or cord.

This box is covered with *x*-ray foil, a heavier lead foil than the ordinary tea lead.

It is only necessary to cover the irradiated portion of the box, i. e., the luminous hemisphere of the tube. The lead surrounds the box and extends two inches below the bottom in flexible curtains, that can be so adjusted that the irradiated field can be limited to any extent. It is not necessary to cover the anode end or that portion of the sides behind the plane of the anode. At the cathode end, the lead must be cut away, one and one-half inches from the cathode prolongation, where it passes through the box. Where the lead hangs below the bottom of the box it is cut at the corners and thus forms three flexible curtains. The bottom of the box is removed so that in adjusting it the operator, by looking over the anode, can limit the irradiated field to any desired area by bending the lead curtains in or out.

During all treatments, the patient lies in comfort on a couch, while the tube is held, on a bracket, over the portion of the body to be treated. The lead shield cuts off the rays from all but the field of operation. Where a small area is to be treated, all but this area may be covered by a small contact shield while the remaining rays are cut off by the box. It is generally better to treat a considerable area surrounding the actual lesion, and it is seldom necessary to use any protection other than the lead-covered box. This always protects the operator.

The chief value of the box shield to the operator is that it protects him as well as his patient. It is simple, readily adjusted, efficient and always interposed between the operator and the source of Roentgen rays and of injury.

If the fluoroscope must be used the operator should

never place his own hand on it for the purpose of estimating the quality and intensity of the light; there are more accurate methods and instruments of precision for making these measurements without risk to the operator. In every instance the screen of the fluoroscope should be covered with a sheet of one-fourth inch plate glass; this does not afford absolute protection, however, as some rays will penetrate it.

The operator should stand behind a thick lead screen, made of sheet lead with an opening corresponding to the plate glass in the fluoroscope. A fluoroscopic examination under other conditions is dangerous to the operator if frequently repeated. The patient's body affords some protection, but the observer is certain to enter the irradiated field if great precaution is not used.

Although it is highly probable that the serious results produced in operators' hands are due to the action of the Roentgen rays, there are probably other contributing causes. Among these the repeated introduction of the hands into the high induction fields surrounding the coil must be considered. Any contributing factor, if it is an agency whose action is unknown, should be avoided as far as possible. It is safer, therefore, to place the induction coil in an adjoining room, leading in the secondary wires through porcelain tubes and having the controlling apparatus in the operating room. This is especially necessary in large hospital laboratories where more than one coil is in use, and where many patients are being treated.

Since I have employed these methods of protection I have noted marked improvement in, and practically a cure of, a severe dermatitis that had been so intense as to cause loss of sleep from the pain.

If Roentgen operators would avoid serious injury, such as has proved fatal in one case, and has caused two experienced operators to lose their hands, they must observe the utmost caution in subjecting themselves to radiations from a Roentgen tube. An operator should never place his hand in the irradiated field and should never employ it on the fluoroscope to test the light. He should always employ an opaque shield surrounding the tube and should keep his hands out of high potential induction fields.

I have been variously and often erroneously quoted in reference to the treatment of Roentgen ray burns. The following is the treatment which I employ and which I have found the most efficient in treating my own dermatitis:

The hands should be washed and soaked in water as hot as can be borne. It will be found that they gradually accustom themselves to very high temperatures, and that the temperature of the water can be gradually increased. The hands should be scrubbed with a sterilized brush, using Eichhoff's superfatted resorcin soap. This will be found very soothing. After thorough washing, the hands should be well rubbed in an ointment of lanolin containing one-half ounce of boracic acid and one dram of resorcin to the ounce. This should be done both morning and night and the hands should always be washed in hot water with the superfatted soap. Simple superfatted soap or soap and lanolin can be used if the resorcin is too severe, with the substitution of benzoic acid in the ointment.

The thickened epidermis and horny growths, with the indurated edges of the indolent ulcers, can be softened by covering them with ointment under oiled silk. The softened epidermis then should be gently removed. The ointment should be renewed after each washing. Small healing ulcers that have become healthy can be covered with surgeon's isinglass plaster, after the hands have been washed and anointed; these ulcers often take from four to six months to heal and may cause intense pain.

In treating the acute erythema resulting from Roentgen ray treatment, I have employed the stearate of zinc composition with 10 per cent. ichthyol. It is very efficient, subdues the inflammation and itching, and helps to produce the tanning which is so essential before deep treatment can be efficiently employed. The powder should not be confused with the stearate of zinc ointment, as any ointment will soften the skin and render it more liable to break down and to slough. The substitution of the ointment for the stearate powder resulted, in one case, in the formation of a large ulcer. The entire epidermis adhered to the ointment and came away with it.

Where an open ulcer has formed, strict antisepsis should be maintained, and irritants should be carefully avoided. Sterile water is an irritant, while normal salt solution and boric acid solution are not. After cleansing, the resorcin ointment should be applied to relieve the pain and to promote healing. The employment of the stearate of zinc composition powder with 10 per cent. ichthyol seems to act as a prophylactic and prevents the production of serious burns during severe Roentgen ray treatment.

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THE SIGNIFICANCE OF TUBERCULOUS DEPOSITS IN THE TONSILS.*

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The object of the research which is outlined in this paper has been to determine, as nearly as possible, the relative importance of the tonsillar tissues of the throat as portals of entrance for a general tuberculous infection. To arrive at a definite conclusion, it seemed necessary to ascertain the truth concerning certain fundamental questions.

First. Are tuberculous lesions produced more easily in the tonsils than in other portions of the gastrointestinal tract?

Second. Does tuberculous adenitis of the neck have its starting point in the tonsils?

Third. What is the importance of tuberculous cervical adenitis as an etiologic factor in systemic or pulmonic infection?

From clinical data collected from literature, and from postmortem examinations which I have made, it is evident that in cases of pulmonic phthisis secondary tuberculous infection takes place more readily in the tonsils than in any other part of the upper respiratory tract.

Seifert[1] has shown that infected sputum plays a most important rôle in the infection of the tonsils, the bacilli finding the crypts of these organs a suitable place for lodgment. It has been proven by Goodale[2] that minute foreign bodies, such as carmin dust, are rapidly

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Handbuch der Laryn. u. Rhin., P. Heymann, vol. ii, p. 714.
2. Absorption of Foreign Bodies by the Human Faucial Tonsil, Especially in Regard to the Origin of Infection Processes, Arch. f. Laryn. u. Rhin., 1897, vol. vii, p. 90.

absorbed by the tonsils from their crypts, and that these particles pass to and through the interfollicular tissues. This has been confirmed by Hendelsohn[3] and Kayser.[4]

Piera,[5] however, went further, and demonstrated that micro-organisms were likewise absorbed through the epithelium, though if they were not capable of resisting the vital action of the tissues, they were destroyed practically as soon as they entered the tonsillar parenchyma. Virulent germs, however, could not only cause local disease, but could be carried to the neighboring lymphatics and thence to almost any part of the body.

Lexer[6] confirmed these results of Piera by a large series of experiments on rabbits.

STATISTICS OF SECONDARY INVOLVEMENT OF THE TONSILS.

The following statistics concern the frequency of secondary involvement of the tonsils in cases of pulmonary tuberculosis. In phthisis a large number of tubercle bacilli pass over the surface of the throat and tonsils, and this condition affords a very good test as to the relative absorbing power of the tonsils and the rest of the pharyngeal mucous membrane.

Schlenker,[7] in a rather elaborate and extensive article, reviewed carefully 22 cases of tuberculosis of the lungs. He found the tonsils diseased in 15. In 13 of the 22 cases involvement of the lungs was extensive, and the tonsil was diseased twelve times. In 9 cases of slight involvement of the lungs in only 3 was tonsillar tuberculosis present.

Schlesinger,[8] in 13 cases of galloping consumption, found tuberculosis of the tonsils twelve times; but in 4 cases of chronic involvement of the lungs, he failed to find any tuberculous changes in the tonsils. He concludes that tuberculosis of the tonsils is a sign of virulent infection of the lungs, and is, therefore, of very serious import. In healed lung lesions or in any circumscribed tuberculous disease the tonsillar involvement was absent.

Walsham[9] examined after death the tonsils of 34 tuberculous patients. Only two of these patients had shown any symptoms of tuberculosis of the tonsils during life, and yet in 20 cases the tonsils were found to be more or less diseased.

Ito,[10] in 6 cases of pulmonary tuberculosis in children, found tonsillar involvement three times, and in 7 cases of miliary tuberculosis the tonsils were involved three times. His statistics cover some 104 autopsies, but in only 10 of the autopsies was the pharyngeal tonsil examined histologically, and, therefore, I can not accept all of his statistics. They are valuable in a positive sense, in that we must believe that he found at least 6 cases of tonsillar tuberculosis.

Dmochowsky[11] examined the tonsils of 15 phthisical patients, 5 of whom had involvement of the larynx, and in all 15 cases tuberculosis of the tonsils could be recognized through the microscope, although no change could be noted with the naked eye. He found the tubercle bacilli penetrating between the epithelial cells of the crypts, especially in those places where there were apparent gaps.

Kruckmann,[12] in 64 autopsies, found some tuberculous condition in the body in 25. Among these 25 there were 12 cases of tonsillar tuberculosis, and of the remaining 13, 5 cases showed either excessively slight or no lesion of the lung. These 5 cases must, therefore, be excluded so far as secondary infection of the tonsil is concerned, so that Kruckmann's statistics should be 20 cases of tuberculosis of the lungs with secondary tonsillar tuberculosis occurring twelve times. In those cases of tuberculosis of the lungs in which there was no tonsillar involvement, the lesion in the lung was either very small or of a fibrous character.

Strassmann[13] examined 21 cases of tuberculosis of some portion of the body. In 15 cases there was pulmonary tuberculosis, and of these 15 the tonsils were involved thirteen times. None of the other cases showed tonsillar tuberculosis.

Ozeki[14] reports 9 cases of secondary tonsillar tuberculosis.

Gourc[15] has made a general study of adenoid growths, bacteriologic examination being carried out in 202 cases. He states that although he examined 17 cases of active tuberculosis, and 18 cases in which the condition was supposed to be hereditary, in no case did he find the tubercle bacillus.

Cornil[16] examined the tonsils of 70 cases of phthisis, finding tuberculosis only four times. The results of these last two observers seem so contrary to all other evidence that I fear that their technic must have been faulty.

A summary of the foregoing statistics, excepting those of Gourc and Cornil, gives us the following table:

Name.	Pulmonary tuberculosis.	Tonsils involved.
Schlenker	22	15
Schlesinger	17	13
Walsham	34	20
Ito	13	6
Dmochowsky	15	15
Kruckmann	20	12
Strassmann	15	13
	136	94

These statistics show that in at least 69 per cent. of cases of pulmonary tuberculosis the tonsils are tuberculous. The majority of the pathologic diagnoses made by the foregoing observers were based on histologic findings. Lately it has been shown that a positive diagnosis of tuberculosis can not be made by the character of the histologic changes. Occasionally giant cells and lesions resembling tubercles result from the irritation of foreign bodies, and it has been definitely demonstrated that certain acid fast bacilli will sometimes give rise to changes scarcely distinguishable from true tubercles. It must, however, be admitted that these lesions caused by foreign bodies and by acid fast bacilli are exceedingly rare, and especially so in the human being. If, in a patient suffering from active tubercu-

3. Absorption by Tonsils, Arch. f. Laryn. u. Rhin., 1898, No. 8, p. 476.

4. Absorption by Tonsils, Therap. Woch., v. Schnirer, Oct. 17, 1897.

5. Die Drusen des Waldeyer'schen Schlundringes, special die Gaumentonsillen betrachtet als Eingangspforte für Micro-organism, Arch. Ital. di Laringol., April 1, 1900.

6. The Mucous Membrane of the Throat as a Port of Entrance for Pyogenic Infection, Arch. f. klin. Chir., 1897, vol. liv, p. 736.

7. Untersuchungen über die Tuberculose der Halsdrüsen, besonders über ihre Beziehungen zur Tuberculose der Tonsillen, Inaug. Diss. Zurich, 1893, u. Virchow's Arch., 1893, vol. cxxxiv.

8. Die Tuberculose der Tonsillen bei kindern, Berlin. Klinik, 1896, vol. xcix.

9. Latent Tuberculosis of the Tonsil, British Medical Journal, May 7, 1898; Lancet, June 18, 1898.

10. Untersuchungen über die im Rachen befindlichen Eingangspforten der Tuberculose, Berlin. klin. Woch., 1903, vol. xl, p. 27.

11. Ueber sekundäre Erkrankung der Mandeln und der Balgdrüsen on der Zungenwurzel bei Schwindsüchtigen, Ziegler's Beitr. zur pathol. Anat., vol. x, p. 481.

12. Ueber die Beziehungen der Tuberkulose der Halslymphdrüsen zu der Tonsillen, Virchow's Archiv, vol. cxxxviii, p. 3.

13. Ueber Tuberkulose der Tonsillen, Virchow's Archiv, 1884, vol. xcvi, p. 319.

14. Die Tuberkulose der Tonsilla palatina, Diss., Würzburg, 1899.

15. Die W. Meyer'sche Mandel, ein Beiträg zur Bacteriologie der Adenoidgeschwülste, These de Paris, 1897.

16. Sur la tuberculose larvee de trois amygdales, Semaine Médicale, 1895, p. 223.

losis of the lungs, lesions should be found which are characterized by epithelioid cells, giant cells and necrosis, these lesions must be looked on as tuberculous, and I believe that the above statistics are practically correct.

I have made postmortem examinations of the tonsils of nine patients, in whom death was due to tuberculosis of the lungs, and in three of these the tonsils were so much involved that a diagnosis of tuberculosis was readily made macroscopically. In the remaining six cases tubercles and giant cells were found when sections of the tonsils were examined under the microscope. In one case numerous sections had to be made before a tuberculous nodule could be detected, but this tonsil had practically disappeared, being represented only by invaginations of intact squamous epithelium and a thin layer of lymphoid cells. Schlesinger is probably not far wrong when he says that in active pulmonary phthisis tuberculosis of the tonsils is almost always co-existent.

The important element in the secondary infection of the tonsils is the presence of tubercle bacilli in the sputum or other secretion which passes over the surface of the tonsil. That the tonsils can be infected by an ascending tuberculosis of the cervical lymph glands is practically impossible. It has been shown by Schlenker, Washam, Schlesinger, Kruckmann, Strassmann and perhaps others, that in obsolete involvement of the lungs, tuberculous infection of the tonsils rarely takes place. This is due to the absence of the tubercle bacilli from the sputum.

Secondary pharyngeal tuberculosis occurs in a very few number of cases by infection from the tuberculous sputum. Laryngeal tuberculosis is more common, but both of these conditions are rare as compared with the frequency with which the tonsils become diseased. To infect a tonsil it only requires that a sufficient number of tubercle bacilli be brought in contact with its surface.

PRIMARY INVOLVEMENT OF THE TONSILS.

We now come to consider the subject of primary tuberculosis of the tonsils. It is a most difficult question to decide, even at autopsy, whether a lesion in any given organ is primary or not, and it is impossible to say positively from a clinical examination that any given tuberculous lesion is the only one in the body or that it is the primary seat of the disease.

The evidence which I intend now to bring forward to show that primary tuberculosis of the tonsils occurs much more frequently than is generally supposed, is conclusive simply because of the enormous quantity of data. Any part of the evidence taken individually is perhaps in itself not unassailable, but I insist that, considered as a whole, it affords positive proof of the occurrence of primary lesions in the tonsils in a certain proportion of children.

Brown[17] reported a case of a woman with a tubercular ulceration on the left tonsil. This healed up under applications of lactic acid without any involvement of other organs.

Pilliet[18] found histologic evidence of primary tuberculosis of the pharyngeal tonsil in 3 out of 10 cases.

Tusseau[19] has observed 3 cases of primary tuberculosis of the tonsils. He believes that it was possible for infection to take place from the food.

Broca[20] examined 100 cases of adenoid vegetations histologically, but in none did he find tuberculosis.

Dieulafoy[21] found 8 cases of primary tuberculosis of the pharyngeal tonsil among 61 adenoids examined. He proved the presence of the condition by inoculation tests in guinea-pigs.

Brindel[22] reports a case of undoubted primary tuberculosis in a child 8½ years old.

Pluder and Fischer[23] found two cases of primary tuberculosis of the pharyngeal tonsil out of 32 examined.

Ruge[24] made very careful examinations of the tonsils of 18 patients, and six times found undoubted tuberculosis.

Lermoyez and Macaigne[25] reported a case of tuberculosis of the tonsil characterized by tubercles with giant cells and a few Koch's bacilli.

McBride and Turner[26] examined 100 cases of enlarged pharyngeal tonsil and in 3 per cent. found distinct histologic evidences of tuberculosis.

Dempel[27] examined 15 pharyngeal tonsils from otherwise healthy individuals and found tuberculosis once.

Ozeki[28] reports two cases of primary tuberculosis of the tonsils.

Piffl[29] in 100 cases of adenoid vegetations which he examined microscopically found tuberculous deposits three times.

Lewin[30] examined 200 cases of adenoids and in 10 of these he found tuberculous deposits. From his studies he believed that this latent tuberculosis of the tonsils can be not only the first but the only tuberculous lesion in the whole body.

Schreibner[31] made very careful examinations of 14 faucial tonsils and 15 pharyngeal tonsils. In none was he able to find tubercle bacilli, but in two of the pharyngeal tonsils he found typical tubercles and giant cells. In 32 examinations at autopsy, while not able to prove absolutely primary infection of the tonsils, he thought it most probable that in two cases such had taken place.

Rethi[32] examined 100 pharyngeal tonsils and found tuberculosis 6 times.

Hynitsche[33] reports the microscopic examination of 180 postnasal tonsils. Seven of these showed tuberculous changes. Tubercle bacilli were found in three instances, while the other cases showed tubercles made up of epithelioid cells and typical Langerhan's giant cells.

Baup,[34] in a very extensive article, probably the most

17. Lar. Sect. d. IX Intern. Congr., Washington, 1897, Centralbl. f. Lar., vol. iv, p. 186.

18. Ueber das Workommen von Riesenzellen in den Adenoiden Vegetationen des Rachens, Societe Anatomique de Paris, March 25, 1892.

19. De l'etiologie de la tuberculose des amygdales et de son traitement, Lyon Med., No. 16, 1894.

20. Adenoide Vegetationen des Nasenrachenraums. 9 Französ, Congress für Chirurgie, Paris, October, 1895.

21. Die larvirte Tuberculose der 3 Mandeln, Acad. de Med., April 30, May 7 u. 14, 1895.

22. Tubercul. ulcer. del' amygdale, de la langue et du larynx chez un enfant de 8½ ans. Gaz. hebdom. d. sc. med. d. Bordeaux, March 8, 1896.

23. Ueber primäre latente tuberculose der Rachenmandel, Arch. f. Laryn. u. Rhin., vol. iv, 1896, No. 3.

24. Tuberculosis of the Tonsils Studied from a Clinical Standpoint, Virchow's Archiv, vol. cxliv, 1896, p. 431.

25. Primäre Tuberculose der Mandeln, Soc. Ana[illegible] June 11, 1897.

26. Nasopharyngeal Adenoids, Edinburgh Medic[illegible] Journal, No. 43, p. 1, 1897.

27. Zur Frage der Tuberculose der adenoiden Wucherungen des Nasenrachenraumes und der Gaumenmandeln bei sont gesunden Leuten, Chirurjija, September, 1898.

28. Die tuberculose der tonsilla palatina, Diss., Würzburg, 1899.

29. Hyperplasie und Tuberculose der Rachenmandel, Wiener klin. Woch., No. 39, 1899.

30. Ueber Tuberculose der Rachenmandel, Fränkel's Archiv f. Laryngologie, vol. ix, p. 377, 1899.

31. Bilden die Tonsillen häufige Eingnagspforten f. die Tuberculbacillen, Deutsche med. Woch., 1899, No. 21, pp. 343-348.

32. Latente Tuberculose der Pharynxtonsillen, New York Medical Record, Aug. 4, 1900.

33. Anatomic Investigations on the Hypertrophy of the Pharyngeal Tonsil, Archives of Otology, 1900, p. 357.

34. Les Amygdales Porte d'entree de la Tuberculose, Paris, Georges Carre et C. Naud, 1900.

carefully worked out of any that has been done on tuberculosis of the tonsils, reports the inoculation of 43 guinea-pigs with pharyngeal tonsils, only a small portion of the tonsil being used in the inoculation. One guinea-pig became tuberculous and it was in the pharyngeal tonsil with which the pig was inoculated that the tubercular lesions were found by histologic examination.

Theissen[35] reports the examination of 45 tonsils and in two cases found primary tuberculosis.

Latham[36] was careful to employ for inoculation tests only the interior portions of the tonsils. In 45 consecutive cases of children seen at autopsy he found tuberculosis of the tonsils 7 times.

Friedman[37] examined the tonsils obtained at autopsy from 91 children and 54 tonsils removed by operation. Of the 91 autopsies 3 showed tuberculosis of the tonsils, probably not primary, and 5 which probably were primary with secondary involvement of the lymphatic glands, intestines and bone. In only one case could tubercle bacilli be found. In 3 cases tubercle bacilli were demonstrated in smear preparations, although no histologic changes were seen in the tonsils. Only one of the 54 operative cases showed primary tuberculosis.

Tarchetti and Zanconi[38] inoculated guinea-pigs with fragments of adenoid growths from 17 persons, but failed in every pig to find evidences of tuberculous infection.

Macfayden and Macconkey[39] found absolutely negative results from the inoculation of guinea-pigs with portions of 44 pharyngeal tonsils and 34 faucial tonsils.

Ito[10] in 104 autopsies failed to find one case of true primary tuberculosis of the tonsils, but in only 10 cases was the tonsil examined microscopically.

Johnston[40] reports one case of primary tuberculosis of the tonsils.

Glas[41] reports two cases of primary tuberculosis of the tonsils.

Name.	Cases examined.	Tonsillar tuberculosis.
Pilliet	10	3
Broca	100	0
Dieulafoy	61	8
Pluder and Fischer	32	2
Ruge	18	6
McBride and Turner	100	3
Dempel	15	1
Piffl	100	3
Lewin	200	10
Schreibner	29	2
Rethi	100	6
Hynitsche	180	7
Baup	43	1
Theissen	45	2
Latham	45	7
Friedman	145	6
Tarchetti and Zanconi	17	0
Ito	10	0
Macfayden and Macconkey	78	0
	1,328	67

To these cases may be added a few more statistics gathered by Richardson[42] which I have been unable myself to find.

Name.	Cases examined.	Tonsillar tuberculosis.
Lermoyez	32	2
Gottstein	33	4
Brindel	68	8
Wex	210	7
	343	21
	1,328	67
	1,671	88

This gives us a collection of 1,671 cases in which the tonsillar tissues of the throat were examined for tuberculous lesions, which were found in 88 cases, that is, in 5.2 per cent. of the whole number examined. In the majority of the cases which were diagnosed as tuberculosis the microscope was the means of examination, although some of the observers inoculated guinea-pigs. It is to be noted that in the inoculation tests the percentage of lesions found was markedly lowered. Many claim that the only method of investigating the presence or absence of tuberculosis is by animal inoculations, and that results so obtained should have more weight than those from histologic examination.

In the first place some very careful investigators have obtained by inoculation results showing more than 5.2 per cent. of primary tuberculosis of enlarged tonsils, while other equally careful observers have failed to find any tonsillar tuberculosis. This discrepancy between observers using the same method argues for a faulty technic on some one's part. Personally, I believe that for the purpose of finding isolated or small tuberculous lesions in the tonsils, the inoculation test is inadequate. It is a known fact that to produce tuberculosis in guinea-pigs or other animals a sufficient number of germs must be introduced to overcome the vital resistance of the organism, and in order to produce lesions sufficiently severe to kill the animal the dosage of germs has to be considerable. The consensus of opinion is that in tuberculous lesions of the tonsils very few bacilli are present and in primary tuberculosis of the tonsils the lesion may be so small as only to be detected after numerous sections have been made. Further, a large number of guinea-pigs inoculated with portions of the faucial and pharyngeal tonsils die from rapid septic infection before tuberculous changes have had time to develop. Therefore, the claim that the presence or absence of tonsillar tuberculosis can be absolutely proven by inoculating a fractional part of a tonsil into a guinea-pig seems to me to be an unscientific one.

I have examined about fifty faucial tonsils which were removed from otherwise apparently healthy children and found one case of undoubted tuberculosis. In about thirty pharyngeal tonsils examined I have three times found characteristic tubercles.

There is one important fact brought out by the statistics which have been given and that is that primary tuberculosis of the pharyngeal tonsil is much more frequent than primary disease of the faucial tonsils. On the other hand, in secondary involvement of the tonsils the faucial tonsil is the one most frequently diseased. The explanation of this is simple. In most cases of secondary tuberculosis the sputum comes more in contact with the faucial tonsil than it does with the pharyngeal. In primary involvement of the pharyngeal tonsil, I believe that the inspired air is the chief source of infection. That the tubercle bacilli may enter the nasal fossæ and lodge on the nasal mucous membranes has been shown by Strauss,[43] Jones[44] and others, who have

35. Quoted from Baup (34).
36. Lancet, Dec. 22, 1900.
37. Deutsche med. Woch., June 14, 1900, No. 24; also Ziegler's Beiträge zur path. Anatomie, 1900, vol. xxviii, p. 66; abstract by Dr. A. O. J. Kelly, Amer. Jour. Med. Sciences, February, 1902, p. 292.
38. Beitrag zum Studium der latenten Tuberkulose der Tonsillen und der adenoiden Vegetationen, Gazzet. degli ospedali e delle cliniche, Sept. 7, 1902.
39. An Experimental Examination of Mesenteric Glands, Tonsils and Adenoids, British Medical Journal, July 18, 1903, p. 129
40. Primary Tuberculosis of the Tonsils, Carolina Med. Jour., 1903, vol. xiix, p. 369.
41. Zur Pathologie der Tuberculose der Gaumentonsillen, Wien. klin. Woch., No. 36, 1903.
42. The Pathology of Adenoid Growths: The Laryngoscope, 1900, p. 827.
43. Bull. de l'Acad. de Med., Paris, 1884, vol. xxxiii, No. 2, p. 8.
44. The Presence of Virulent Tubercle Bacilli in the Healthy Nasal Cavities of Healthy Persons. Med. Rec., Aug. 25, 1900, vol. lviii, p. 285.

found virulent tubercle bacilli in normal nasal cavities and in the nasopharynx. The retention in the nose of all forms of bacteria is favored by hypertrophy of the pharyngeal tonsil. The normal secretions of the nasal fossæ lose their vital bactericidal property when overcharged with organisms. The raising of the soft palate during swallowing forces any mucus with the contained germs directly into the crypts and folds of the enlarged pharyngeal tonsil.

Tuberculous adenitis of the cervical glands is, as we all know, one of the most frequent surgical conditions occurring in children. For many years the tuberculous nature of this condition has been recognized and it has also been known that it could exist as practically an isolated lesion and be recovered from without the involvement of other organs. The majority of text-books on surgery suggest that in cervical adenitis the tubercle bacilli enters either through abrasions of the skin or mucous membrane, through the mucosa of the nasal fossæ, through lesions in the middle ear and in every possible and impossible way, except by the gate through which they really do enter, namely, the tonsils. I believe that in about 90 per cent. of tuberculous infection of the glands of the neck the tonsils are the portals for the infection. As an illustration let me briefly quote the following case:

A colored child 3 years old, extremely poorly nourished, died as the result of a retropharyngeal abscess. At the postmortem the upper deep lateral pharyngeal glands were found caseous and enlarged. The retropharyngeal space, by the breaking down of the retropharyngeal glands, had been converted into a large abscess holding two or three ounces of purulent material. The bronchial and mesenteric lymph glands showed tuberculosis and there was a small abscess at about the fourth dorsal vertebra. There were beginning tuberculous changes of the spleen, but no involvement of the lungs or kidneys. The most interesting point in the case was the finding of distinct tuberculous lesions in the pharyngeal tonsil. The pharyngeal tonsil drains directly into the retropharyngeal glands and through or by them to the upper deep cervical glands. As these groups were the only glands of the neck involved it is not difficult to trace the connection between the lesion in the adenoids and the consequent involvement of the lymphatics.

It seems scarcely probable that in tuberculous adenitis the tubercle bacilli ever gains entrance through the intact normal mucosa of the pharynx. The epithelium covering the mucous membranes of the mouth and throat is of the squamous pavement variety and is especially adapted as a protective covering. The surface of the tonsillar tissues is covered with the same epithelium, but in the invaginations which form the crypts, the epithelium becomes so differentiated that its normal protective function is lost. In no other place in the throat is so good an opportunity provided for bacilli to gain access to the subepithelial tissues.

A series of experiments which I made on guinea-pigs demonstrates the difficulty of inoculating tubercle bacilli through the throat of an animal in which the tonsillar tissue is absent or rudimentary. The microscopic examination of a series of fifteen sections cut from above downward through the pharynx and including the upper part of the larynx, failed to show any more than a trace of lymphoid accumulation beneath the epithelium. We can safely say that guinea-pigs do not have tonsils. The method of inoculation in these pigs was to place as much as possible of a pure culture of the mastoid process. They are dependent for their mal's mouth.

Guinea-pig No. 1 was inoculated on March 18, 19, 21, 22, 23, 24, 25, 26, and killed on March 28 with chloroform. At the postmortem the submaxillary lymphatics and other cervical lymph glands varied in size from a millet seed to an oval form not more than one-fourth inch long. No traces of tuberculosis could be found in any portion of the body.

Microscopic Examination.—The microscopic examination showed a slight proliferative inflammation of the cervical lymphatics.

Guinea-pig No. 2 was inoculated in the same manner and at the same time as guinea-pig No. 1, but was not killed until April 7. At the postmortem the submaxillary glands were very slightly enlarged, possibly a little more so than in guinea-pig No. 1. There was one slightly enlarged bronchial gland, and a small white node on the left kidney. There was no lesion in the lungs or other viscera, and no enlargement of the mesenteric glands.

Microscopic Examination.—Microscopic examination showed no tuberculous lesions.

Guinea-pig No. 3, inoculated in the same manner and at the same time as guinea-pig No. 1, died on May 9.

Postmortem examination showed marked enlargement of the submaxillary glands and of the deep cervical. The largest of the cervical glands measured one-fourth inch in diameter. The bronchial glands were matted in one large mass, measuring ½ by ¾ of an inch. The mesenteric glands were markedly enlarged, almost twice as large as the cervical or bronchial glands. The lungs were congested and showed scattered miliary tubercles.

Microscopic Examination.—The cervical lymph glands, the bronchial glands and the mesenteric glands all showed distinct tuberculous disease. In all numerous tubercle bacilli were found. In the lungs there was congestion and catarrhal pneumonia, but no distinct tubercles and no bacilli.

Summary.—The first guinea-pig, killed ten days after the first inoculation, did not show tuberculosis. The second guinea-pig, killed twenty days after the first inoculation, also did not show tuberculosis. The third guinea-pig, dying fifty-two days after the first inoculation, showed a general tuberculosis of the lymph glands, those of the mesentery being most diseased. The case is evidently one of tuberculous infection taking place through the gastrointestinal tract. The inference to be drawn from these three experiments is that, in the absence of tonsillar tissues in the throat, the tubercle bacilli will infect the mesenteric glands as easily, if not more readily, than they will either the cervical or bronchial glands.

Baup[34] attempted to produce tonsillar tuberculosis in two dogs and seven rabbits. He failed entirely with dogs on account of the rudimentary condition of the tonsils. In rabbits, however, he found it very easy to produce a pharyngeal tuberculosis and could limit the lesion to the tonsils by careful manipulation and regulation of the dose. In animals thus inoculated, thoracic and abdominal tuberculosis was very rare, but involvement of the glands of the neck almost constant. He believes that the infection took place through the tonsils though he did not find the tubercle bacilli in the tonsillar tissue. Ravenel[45] infected four hogs through the mouth by feeding them ten meals containing pure cultures of the tubercle bacilli. All of the animals contracted general tuberculosis, most marked in the lungs and ending in death. In three of the four hogs ulcerative lesions of the tonsils were present, and in the fourth many tubercle bacilli and areas of caseation were found by the microscope in the tonsils.

The throat of the hog is well supplied with tonsils.

45. The Passage of Tubercle Bacilli Through the Normal Intestinal Wall, The Jour. of Med. Research, vol. x, No. 3, pp. 460-462, December, 1903.

Though macroscopically they do not conform to the shape of the tonsils in the human being, they resemble it more or less closely under the microscope.

The following experiments were made in the laboratory of the State Live-Stock Sanitary Board of Pennsylvania.

General Outline of Experiments.—Five pigs were used in this series of experiments and were all inoculated in the same manner. The animal was held by an assistant and the jaws kept open by a piece of wood placed between the molar teeth. A cotton swab saturated with a virulent culture of bovine tuberculosis was rubbed over the posterior portion of the mouth so that it probably came in contact with the surface of the tonsils. It is possible that a number of the bacilli were directly rubbed into the crypts of the tonsil. There was no reason to believe that any lesion of the epithelium was produced during these manipulations.

After varying intervals of time the hogs were killed by being knocked on the head and bled through the chest. In making the postmortem examinations an incision was made in the median line of the body from the symphysis of the lower jaw to the symphysis of the pubic bone. The tongue, pharynx, nasopharynx, the glands and vessels of the neck, larynx and esophagus were all dissected out in one piece. The thoracic and abdominal viscera were removed from the body, carefully inspected, and all suspicious parts saved for microscopic examination. Portions of the tonsils and submaxillary lymphatics were taken for microscopic examination.

HOG 66.—April 27. A pure culture of virulent bovine tuberculosis was rubbed over the posterior portions of the mouth. May 19, animal killed.

Postmortem Examination.—Pathologic diagnosis: Beginning tuberculosis of the tonsils and cervical lymph glands.

Pharynx and tonsils: No lesion visible.

Cervical lymphatics: The submaxillary glands were enlarged, almost the size of an English walnut, and on section a few tuberculous areas were seen. The lower cervical glands were very slightly enlarged, about the size of a pea.

Lungs: No lesion visible.

Bronchial and mesenteric glands: Not enlarged.

Liver and spleen: No lesion visible.

Intestines: No lesion visible externally.

Microscopic Examination.—Tonsil: There were a few small accumulations of polymorphonuclear leucocytes surrounded by a narrow zone of epithelioid cells. These beginning tubercles were rich in tubercle bacilli.

Submaxillary lymphatic glands: Several distinct tubercles scattered through the substance of the gland, made up of epithelioid cells with central cores of polymorphonuclear leucocytes. A few giant cells were seen. Numerous tubercle bacilli were found.

Mesenteric glands: One or two small areas closely resembling tubercles were found. No tubercle bacilli were found.

Remarks.—There was only one inoculation in this animal, and twenty-two days had elapsed between the inoculation and the time of death. The lesion in the mesenteric gland was probably not tuberculous. The finding of the tubercle bacilli in the tonsil and in the submaxillary gland proved the presence of tuberculosis. The important feature of this case was the non-involvement of the lungs or of any other organ except the tonsil and adjacent lymph glands.

HOG 56.—A pure culture of virulent bovine tuberculosis was rubbed over the posterior portion of the mouth, April 18, 27, May 10, 11:30 a. m. May 10, 3:30 p. m., the animal was killed.

One c.cm. of an emulsion made from the right submaxillary lymphatic gland was inoculated into the peritoneal cavity of a guinea-pig.

June 1, guinea-pig died. The postmortem examination showed the presence of tuberculous peritonitis, involving the parietal peritoneum and the omentum. The lungs were apparently normal. Numerous tubercle bacilli were found in the omentum.

Postmortem Examination.—Pathologic diagnosis: Primary tuberculosis of the tonsils, with secondary involvement of the cervical lymphatics. Miliary tuberculosis of the lungs. Miliary tuberculosis of the liver.

Pharynx and tonsils: No lesions visible.

Cervical lymphatics: The submaxillary glands were markedly enlarged, almost the size of a hen's egg, the whole group measuring about 3 by 2 by 1 inches. On section the glands showed advanced caseation. The lower cervical glands were also enlarged, although the disease was not as far advanced as in the submaxillary glands.

Lungs: Numerous miliary tubercles were scattered over the surface, and through the interior. In the smaller lobes the disease was more advanced than in the larger ones.

Bronchial and mesenteric glands: Not enlarged.

Liver: A few whitish nodules were seen on the surface.

Spleen and intestines: No lesion visible externally.

Microscopic Examination.—Tonsils: About half of the section examined was normal; the remaining portion was made up of illy defined tubercles, consisting of epithelioid cells, necrotic tissue and polymorphonuclear leucocytes. Giant cells were found in moderate numbers. A few tubercle bacilli were found.

Submaxillary lymph gland: Almost all of the gland was taken up by the tuberculous tissue, consisting of necrotic material, epithelioid cells, a few giant cells and numerous polymorphonuclear leucocytes. Very few tubercle bacilli were found.

Lungs: Typical miliary tubercles were found and were made up of epithelioid cells surrounding a central necrotic core. In some places there were numerous polymorphonuclear leucocytes; epithelioid cells were scattered through the whole mass. A moderate number of tubercle bacilli were found.

Liver: The nodules seen on the surface of the liver were characterized by the disappearance of normal liver cells and the presence of epithelioid cells. There was, however, no necrosis, no giant cells and no polymorphonuclear leucocytes.

Mesenteric glands: Normal.

Remarks.—In this pig, although only twenty-two days had elapsed between the first inoculation and the death of the animal, the disease was much more advanced than in the foregoing animal; this is probably due to the greater dosage, possibly also to the lessened individual resistance. The barrier formed by the lymph glands of the neck had been broken through and a distinct miliary tuberculosis of the lungs was in progress. In spite of the frequent dosage, the mesenteric glands did not in this animal show any tuberculous lesion. The production of tuberculosis in a guinea-pig by inoculating it with an emulsion of the submaxillary gland was a rather superfluous proof of the tuberculous nature of the disease.

HOG 55.—A pure culture of virulent bovine tuberculosis was rubbed over the posterior portion of the mouth, April 18, 27, and May 10. The animal was killed May 17.

Postmortem Examination.—Pathologic diagnosis: Tuberculosis of the tonsils and cervical lymphatics. Beginning miliary tuberculosis of the lungs and liver. Beginning tuberculosis of the bronchial glands and mesenteric glands.

Pharynx: No lesion visible.

Tonsils: Left tonsil showed an ulceration about the size of a split pea. On the right tonsil were a few elevated areas scarcely the size of a split pea.

Cervical lymphatics: The submaxillary glands were greatly enlarged, completely broken down and filled with pus. The lower cervical glands were considerably enlarged, and though caseous, were not so completely disintegrated as the submaxillary glands.

Lungs: Miliary tubercles were scattered over the surface. Small pneumonic areas were found in one of the smaller lobes.

Bronchial glands: Not enlarged.

Liver: A few white nodules, varying in size from a grain of wheat to a little larger than a pea, were scattered over the surface. Some of these areas seemed very diffuse and not sharply differentiated from the surrounding parenchyma.

Spleen and intestines: No lesion visible.

Mesenteric glands: Glands possibly slightly enlarged.

Microscopic Examination.—Tonsil: In the section examined a small tubercular area was seen made up of epithelioid cells, necrotic material and a few giant cells. A few small tubercles

were scattered around the periphery of the central area. No tubercle bacilli could be found.

Submaxillary glands: A peripheral zone made up of epithelioid cells, connective tissue, and a few giant cells formed the wall of one large necrotic mass.

Lungs: The miliary tubercles showed a central core of necrosis infiltrated by polymorphonuclear leucocytes and surrounded by epithelioid cells. No tubercle bacilli were found.

Bronchial glands: The presence of a few scattered tubercles made up of epithelioid cells and an occasional giant cell, but without necrosis, showed beginning tuberculous changes.

Liver: The nodule removed was made up of round cells and elongated cells approaching the connective tissue type. This tissue displaced the normal liver cells and extended to a varying degree into the interlobular trabeculæ. There was no necrosis and no giant cells.

Mesenteric glands: A few tubercles were seen, made up of epithelioid cells, with surrounding central foci of polymorphonuclear leucocytes. A few giant cells could be made out, and there was beginning necrosis. No tubercle bacilli could be found.

Remarks.—The pathologic evidence in this experiment, as shown by the naked eye examination and by the use of the microscope, was sufficiently characteristic to justify a diagnosis of tuberculosis. For some reason which I can not explain I was unable to find tubercle bacilli by the ordinary carbofuchsin method. This experiment is simply confirmative of No. 56, but shows more advanced disease of the cervical lymph nodes. There was also a beginning involvement of the bronchial and mesenteric glands.

HOG 54.—A pure culture of virulent bovine tuberculosis was rubbed over the posterior portion of the mouth, April 9, 11, 14 and 18. The animal was killed May 24.

Postmortem Examination.—Pathologic diagnosis: Tuberculosis of the tonsils. Advanced tuberculosis of the cervical lymphatics. Well-marked miliary tuberculosis of the lungs. Beginning tuberculosis of the bronchial and mesenteric lymph glands.

Tonsil: Three or four punched-out ulcers, about one-fourth inch in diameter, were scattered over the surface of both faucial tonsils.

Pharynx: No lesion visible.

Cervical lymph glands: Submaxillary glands were greatly enlarged, about the size of a hen's egg; they were broken down and caseous. The lower cervical glands were considerably enlarged and well advanced in tuberculosis.

Lungs: There was well-marked miliary tuberculosis. Nodules were scattered all over the surface and through the substance of the lung, some of them beginning to be caseous.

Bronchial lymph glands: Enlarged to almost the size of a pigeon's egg. On section several tuberculous areas were seen.

Liver: A few whitish nodules were scattered over the surface. These spots did not seem to be connected with the liver parenchyma.

Intestines: No lesions visible externally.

Mesenteric glands: Somewhat enlarged, and some of them showed caseation.

Microscopic Examination.—Tonsil: The section examined showed marked caseation and destruction of the tonsillar substances. Very few bacilli were found.

Submaxillary gland: There was complete destruction of the glandular substance. No tubercle bacilli were found.

Lungs: Miliary tubercles were scattered through the substance of the lung, some beginning to break down and others just forming. No tubercle bacilli were found.

Bronchial glands: The glandular substance was greatly destroyed, though some normal lymphoid tissue was still present. No tubercle bacilli were found.

Mesenteric glands: There was considerable caseation, but some normal lymphoid tissue was still left. A few tubercle bacilli were found.

Remarks.—Forty-five days elapsed between the time of the first inoculation and the death of the animal. The miliary tuberculosis of the lungs was much more marked than in any of the other hogs, also the involvement of the mesenteric and bronchial glands. The disease in the tonsils was also in a more advanced stage.

SUMMARY OF THE FOREGOING SERIES OF EXPERIMENTS.

There can be no doubt but that the disease in all of the above animals was tuberculosis. The first lesion probably appeared in the tonsil and very shortly afterward the submaxillary glands became involved. The tuberculous changes in the submaxillary gland developed much more rapidly than in any other portion of the body. As the cervical glands broke down and the barrier which they offered to the progress of the tubercle bacilli was thus removed, a miliary tuberculosis developed in the lungs. Later the bronchial glands became infected. The mesenteric glands generally showed a tuberculosis about as severe as that of the bronchial glands.

From these experiments it seems that the tonsillar tissue is more resistive to the action of the tubercle bacilli than the adjacent lymph glands. This is shown by the fact that the disease in the cervical glands was always more advanced than that of the tonsils, although the lesions appeared in the tonsil after inoculation as soon as they did in the submaxillary glands.

Ravenel[45] injected an emulsion of equal parts of melted butter and warm water containing a large number of tubercle bacilli through a tube into the stomach of a number of dogs. Tuberculosis developed in a majority of guinea-pigs inoculated with the chyle and mesenteric glands removed from these dogs four hours after their injection; and yet, in no instance was there any lesion in the intestinal wall of these dogs. Bollinger[46] furnishes further evidence along this line. Because the bacillus can pass through the epithelium of the intestinal tract there is no reason to believe that these organisms can penetrate through the whole tonsillar substance without some reaction taking place. The lymphoid tissue of the tonsil acts as a filter just in the same manner as does the lymphoid tissue of an ordinary lymph gland. That the tonsil is not so easily destroyed by the tubercle toxin as is an ordinary lymph gland is simply an indication of the resistive power of the tonsillar tissue against bacterial toxins.

METHODS OF GENERAL SYSTEMIC INFECTION.

The most important question concerning tuberculosis of the tonsils relates to the possibility of a general infection. As the efferent vessels of the tonsils drain first to the lymph glands of the neck we must have involvement of these glands before further mischief is possible. That tuberculous adenitis of the cervical lymphatics originates from infection through the tonsils has been proven clinically as well as by the above experiments, and it seems scarcely worth while to dwell on this subject further. This being so it then becomes a question as to the importance of cervical adenitis.

Without going deeply into the subject may I call attention to a few thoughts which have suggested themselves during my work on the tonsils? It is first necessary to recall the anatomy of the lymphatics of the neck and especially the termination of their efferent vessels. Practically all the lymph of the head and neck empties finally into the internal jugular chain of glands. A collecting trunk from the internal jugular chain unites with the efferent vessels of the subclavian glands and forms the jugular trunk. On the right side this lym-

46. Ueber d. Infectionswege des tuberculösen Giftes, M. M. W., 1890, August 19, No. 33, p. 567.

phatic trunk terminates in the internal jugular vein at its junction with the subclavian vein. The left jugular trunk usually ends in the terminal bend of the thoracic duct, but it may terminate directly at the junction of the two veins as it does on the right side. Therefore the tubercle germ, following out the cervical system of lymphatics can not possibly gain access to the body as a whole until it has entered the blood. The vessels into which the jugular trunks empty are conveying the blood directly to the lungs. These facts would lead us to suppose that the first general infection from tuberculosis of the cervical lymphatics would be a miliary tuberculosis of the lungs. This happened in every pig of the series above reported except No. 66, in which there was no involvement of the lungs. In No. 66 the barrier to the progress of the bacillus offered by the cervical lymph glands had not yet been overcome, so that infection of the lung by this route was not possible.

We must remember, however, that bacteria may gain access to the general system from a localized area by direct inoculation of the vascular system from a breaking-down foci, and also by the extension of the disease through the continuity of structure. In tuberculosis of the cervical lymph glands the tubercle, before breaking down, becomes surrounded by a distinct fibrous capsule, so that the local inoculation of the circulation is very rare. Extension of the disease by continuity of structure, as, for instance, the production of a cervical Pott's, is not outside the range of possibility. However, so far as the lymph glands of the neck are concerned, I think we are safe in saying that these two methods of extension of tuberculosis have killed very few people.

In an adenitis arising from a tonsillar infection the germ has to pass through two sets of glands before gaining access to the large jugular trunk. It seems, therefore, that in ordinary tuberculous cervical adenitis the danger of systemic or pulmonary infection is scarcely any greater than would come from a localized tuberculous lesion in any other portion of the body. If the dosage is sufficiently large to quickly overcome the vital resistance of the lymphatic tissues a general miliary tuberculosis of the lungs is to be expected, but the rarity of this condition following tonsillar involvement is shown by a study of phthisical patients. In these cases, as has been before stated, a large number of bacilli are brought in almost constant contact with the surface of the tonsils. While in the majority of cases of phthisis there is infection of the tonsils, in comparatively few is there very marked involvement of the cervical lymphatics, and the occurrence of a miliary tuberculosis following breaking down of the lymphatic glands of the neck is a very rare occurrence.

The infrequency of glandular involvement in this secondary tonsillar tuberculosis seems at first sight inconsistent with the idea which has been advanced in this paper concerning the origin of the etiology of tubercular adenitis. We must remember, however, that in cases which have had perhaps for years an active tuberculous process in their lungs, there is developed a certain degree of immunity. For this reason secondary inoculations of the various portions of the upper respiratory tract outside of the tonsils are comparatively rare. When we consider that the whole of the trachea, the larynx, the pharynx and the mouth are almost continuously bathed with multitudes of virulent organisms, it is remarkable that a general pharyngeal tuberculosis is scarcely ever seen during life, and that laryngeal tuberculosis is the exception and not the rule.

Baumgarten,[47] in a series of experiments on animals, demonstrated that tubercle bacilli when placed in the unwounded urethra and bladder cause production of tuberculosis in the lungs. To obtain these results, however, it was necessary to use the most virulent bacilli and in not too great a quantity. Similar results were obtained by subcutaneous and intraocular inoculations. He believed that these results were due to the fact that only a few bacilli obtain an entrance to the general circulation, and that they were gradually lodged in the point of predilection, namely, the lungs. If these results obtained by Baumgarten could be confirmed by clinical data we would have to acknowledge that a tuberculous lesion, no matter how small or in what part of the body it is placed, is of very serious import. Osler believes that scarcely a man reaches the age of forty-five without having had a tuberculous lesion in some portion of the body, and this view is accepted by the majority of experts on tuberculosis. From a careful study of the foregoing experiments, and of a rather extended literature, it seems to me that tuberculosis of the cervical lymphatics becomes dangerous only when the glands break down, and the possibility of miliary tuberculosis is to be feared.

CONCLUSIONS.

In conclusion I desire to summarize the more important facts which have been suggested by the foregoing study.

The tonsillar tissue of the throat, because of its peculiar anatomic construction and its topographical relations, is more liable to become infected by tuberculosis than any other part of the upper respiratory tract. In nearly all cases of advanced pulmonary phthisis the faucial tonsils become inoculated. In about 5 per cent. of hypertrophied pharyngeal tonsils some form of primary tuberculosis will be found. Primary infection of the faucial tonsil is a rarer condition.

Tuberculous adenitis in the cervical lymphatics develops in the majority of cases from infection originating sometimes in the faucial tonsils, but more frequently in the pharyngeal tonsil.

The tubercle bacillus is probably unable to pass through the tonsils without having first overcome the vital resistance of the tonsillar tissue.

The danger of systemic or pulmonic infection resulting from a tuberculous lesion in the tonsillar tissues of the throat is about equal to that of tuberculosis of the cervical lymphatics. The lesion to be expected as a resultant infection from the broken-down glands of the neck is a miliary tuberculosis of the lungs. Further than this possibility, tuberculosis of the lymph glands of the neck is no more dangerous than a localized tuberculous lesion in any other portion of the body.

The tonsils are more resistant to the action of bacterial toxins than ordinary lymphoid tissue.

DISCUSSION.

DR. HENRY L. SWAIN, New Haven, Conn.—In considering the question of tubercular deposits in the tonsils, we have to keep in mind the fact that the latter are in every sense of the word lymphatic glands. Tubercular infection in the tonsil is no more important than infection of a lymphatic gland in the neck. We also have to consider whether the tonsil has any greater defense against infection than the other portions of the mucous membrane of this region. We can answer this question in the affirmative, for it possesses phagocytes which the other portions of the nose and throat do not. There is just as much lymphoid tissue present in the columns of the pharynx as in the small tonsil of some individuals. If the tonsil is provided with

47. Wien. med. Woch., 1901, Nov. 2, p. 2049.

these agents for protection, would it not be safer for the infection to occur through the tonsil than through other portions of the nasopharynx? There are always leucocytes wandering outward between the cells of the epithelium of the pharynx and nasopharynx, and it is through these openings that the tubercle bacilli enter when the tonsil is infected. Around the mouths of the racemose mucous glands we frequently see masses of lymphoid tissue which we term follicles, which are just as capable of infecting the system as the pharynx or the faucial tonsils. When 1,671 cases have been found in literature, and only 5 per cent. of them with tubercular tonsils in non-tubercular individuals, the percentage is seen to be very small. A much greater per cent. of these individuals, according to prevailing theories, must have had some form of tubercular infection if they live to 30 years of age; the tonsil is to blame in but 5 per cent. The tonsil is probably not the only point in the upper air passages through which the infection can enter. If it be true that the healthy tonsil protects itself against the invading host of germs, ought we so resolutely to bend our efforts to the eradication of this tissue? In all our literature on tuberculosis it is evident that the lung is the place of least resistance. Why is it that when we have an infection in any part of the body that the lung is the place that gets the final infection? The question has not been entirely settled, but I think sufficient attention has not been paid to the investigations of Dr. Miller of the University of Wisconsin, who has given especial attention to the study of the minute anatomy of the lungs. He finds that there are islands of lymphoid tissue well down toward the lobules. I believe that we harbor the germs in our bronchial glands or elsewhere in the system, and they are finally presented to the circulation in the lungs. The germs then multiply, especially in these lymphoid portions. Dr. Wood's work shows the absolute possibility of infecting the tonsils by a very simple process, and his observations concerning the production of miliary tuberculosis in certain cases are most interesting.

DR. J. J. KYLE, Indianapolis—One reason why secondary tuberculosis of the tonsil has been overlooked is because we have been considering tuberculosis as an incurable disease. At the present time we know that the majority of cases of tuberculosis of the lung get well under favorable circumstances. I can not but think that in the majority of cases it will become a routine practice to remove the tonsils in all cases of tuberculosis of the lungs. In a number of cases coming under observation of hyperemia of the tonsil and pharynx with tubercular infiltration, removal of the tonsil has effected changes for the better in the metabolism of the patient.

DR. C. M. COBB, Boston—One point brought out in the paper seemed to me of special importance, namely, that the point of entrance was diseased. Quite a large number of cases of subadenitis do not have active tuberculosis of the tonsil or ulceration of the tonsil; if the infection is tubercular, it either comes from some other part of the body or else the adenitis is due to the presence of some other bacteria.

DR. EMIL MAYER, New York City—The practical side of Dr. Wood's paper is that primary tuberculosis of the upper air passages is found in the pharyngeal tonsil at an early date, and we are, perhaps, too lax in not examining lymphoid growths that we remove. A case in point is that of a young lady who was referred to me for a slight irritation in her throat. Her physician found evidences of consolidation, and desired all irritative conditions attended to. I found adenoids and removed them; these on examination were found to contain tubercle bacilli. An early diagnosis of tuberculosis was thus made possible long before it could be established in any other way, to the ultimate benefit to the patient.

DR. ROBERT C. MYLES, New York City—It has been a question with me ever since I began the study of diseases of the respiratory tract that if 80 or 90 per cent. of people have tuberculosis in some form, and 12 per cent. die, in what way does the infection take place? I believe it is through some of the lymphatics of the respiratory tract. Absorption may occur in the small area between the rhinopharynx and the larynx and be carried through the circulation into the lungs. That has always been my idea, but I could never prove it, and Dr. Wood is now doing this.

DR. E. FLETCHER INGALS, Chicago—Is the danger of infection greater through diseased tonsils than through healthy tonsils? The significance of the number of cases in which the bacillus has been found in the tonsils is hard to determine. Dr. Swain placed the percentage of tuberculosis very low as compared to the figures of Nageli. His thorough examination of 500 successive bodies showed the tubercle bacillus present in 97 per cent., and as he did not find it in any children under 1 year of age, and in only a few cases of children under the age of 6, it appears that practically every adult had the infection somewhere in the body. So it is not singular that it is found in the tonsil in 5 per cent. of cases.

DR. NORVAL H. PIERCE, Chicago—The presence of epithelioid cells and giant cells around a common center is not conclusive evidence of tuberculosis. I believe the only real conclusive evidence is the reproduction of tuberculosis after the infection of animals, and not even this can be considered absolute evidence, because the bacilli may have been taken from the surface of the tonsil when the emulsion is made. I do not think we should be led by this paper to look on every tonsil as an enemy, and that we should not operate on every tonsil we find to be slightly enlarged. I believe too much of that is being done; as we can never take out the entire tonsil, it is better not to touch it at all than to leave a mutilated base which will be all the easier to infect. Of course, where the tonsil is enlarged so much as to interfere with respiration or speech, or where there is demonstrable disease of the crypts, then it should be removed; but this should not be done simply because it may become the seat of disease.

DR. E. PYNCHON, Chicago—Any tonsil that pours out a diseased secretion can not be a healthy tonsil. Any tonsil that can absorb tubercular germs is not a healthy tonsil, and it is advisable to totally remove it. It must be remembered that a tubercular patient is in position to receive a fresh infection, and, therefore, these diseased tonsils, when present, should not be allowed to remain. I have frequently done this operation on tubercular patients, with the most favorable results. As regards the failure to thoroughly remove the tonsil, I claim that if by my method I can convert that space into mucous membrane free from all visible follicles, leaving it as pink as the roof of the mouth, I have practically cured the condition and thoroughly removed the growth.

DR. G. V. WOOLLEN, Indianapolis—In 1888 I said there was no such thing as a tonsil as an anatomic structure, and I have repeated that statement on several occasions since, and have been freely criticised for it. We go on talking about healthy tonsils and diseased tonsils as if there were such a distinction. All tonsils are diseased tonsils; they are pathologic and not anatomic products. If you view this subject from the standpoint of diseased throats, making the examination of people promiscuously, you will find a small percentage of tonsils. Since 1888 I have made a record of every case examined and noted all kinds of tonsils, large and small. I have never looked over my record, but I think I am safe in saying that not more than 25 per cent. of patients examined show anything like a tonsil. If my observations are correct, they play a small part in the production of disease. One out of every five people dies of tuberculosis; it is the great white plague. If these figures be correct, and if only 25 per cent. of diseased throats have tonsils, and 5 per cent. of this 25 per cent. have infection, it greatly minimizes the matter. I throw this out as a suggestion, and not as criticism, for I want Dr. Wood to continue his investigations.

DR. EDWARD R. BALDWIN, Saranac Lake, N. Y.—There is difficulty encountered in the technic of experimentation and there are few experiments which have brought much of value to the study of this subject. The question at the present day is regarded as one of the most important in the whole field of medicine. It is being fought over throughout Europe, whether the invasion of tuberculosis is through the intestine, tonsil or nasopharynx; or whether it is inhaled directly into the lung. The

most persistent advocate of tonsillar invasion is Aufrecht, who has held that the nasopharynx is the point of entrance, going from thence into the blood vessels. It is an interesting question whether the bacillus can pass through a healthy tonsil or a diseased (not ulcerated) tonsil, without leaving behind any trace of its passage. There seems to be good evidence that it can do so. The question to be worked out is: Can the bacillus pass through the tonsil, through the chain of cervical glands, and enter the circulation without leaving this trace? Dr. Wood's work is a contribution in this line. The solution of this problem may change all our ideas regarding the point of entrance of tuberculosis. We have been believing for years that the bacillus is inhaled directly into the alveoli; this has seemed absolutely conclusive from Cornet down. Now we have evidence that the infection is by ingestion. The question is an exceedingly complex one, and experimental work is extremely difficult. There are many things to be considered before final conclusions can be reached, but it is evident that there are various methods by which the bacillus can reach the pulmonary area.

DR. GEORGE B. WOOD—I can not agree with Dr. Swain that the faucial and the pharyngeal tonsils are not the most active source of infection of the cervical lymph glands, and I do not believe that the solitary lymph follicles show a less resistance to bacterial invasion nor that they absorb infectious material any more than their comparative size would lead us to suppose. Invading bacteria are killed unless they can overcome the vital resistance of the surrounding tissues, but if they live they must by the very act of their living produce toxins which, in the case of pathogenic organisms, give rise to specific tissue reaction. Pathogenic germs can not, therefore, pass through normal tissue without some sign of their presence being manifested. The experiments of Ravenel, however, proved that tubercle bacilli could pass through the normal intestine within four hours after being placed in the gastrointestinal tract. Absorption through the intestinal wall is a different question from the passage of bacteria through lymphoid tissue. It is well known that all lymphoid tissue acts as a filter for micro-organisms, and until the resistance of the tissue is overcome this filtration is active. Hence it would seem that some lesion must exist in the tonsil before infection of the cervical lymph nodes is possible. So far as the possibility of a general infection from a tuberculous tonsil is concerned, I scarcely believe I would have my tonsil taken out because of a tuberculous lesion, any more than I would have my finger amputated if I contracted a tuberculous deposit from making an autopsy. At present I am inclined to believe that in the great majority of cases infection of the lungs takes place through the air and not through the blood. Tubercle bacilli gaining access to the lungs through the blood produce a miliary tuberculosis, whereas the ordinary tuberculous pulmonary lesion begins as a single focus in the apex, which, gradually spreading, involves the rest of the lung.

THE ETIOLOGY OF EYE STRAIN.

FROM A PHYLOGENETIC AND ONTOGENETIC STANDPOINT.

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Eye strain may be divided into two general classes—that due to irregularities in refraction and that due to muscular imbalance. To the average physician the irregularities in refraction constitute the sum total of what may be termed normal variations, in contradistinction to pathologic disorders. The consideration of the muscular insufficiencies is limited more exclusively to the specialist who justly recognizes their importance, and, to judge from the recent literature on heterophoria, the subject is still open for investigation. As an anatomist, however, I have only to deal with the anatomic facts bearing on the causes of variations and will confine myself to this side of the subject, which has hitherto been dealt with sparingly. To understand why an organ is degenerating or subject to troubles unknown to the lower forms, it is necessary to study its comparative anatomy. I purpose to call attention to facts which in their sequence form themselves into a hypothesis that may aid in the explanation not only of the muscular difficulties but of the refraction errors as well. Strange as it may seem, muscular insufficiency is phylogenetically older than refraction error but both are intimately connected because the muscular apparatus is merely an accessory to the sense of sight. The comparative anatomy, therefore, must be followed from the lower vertebrates to the highest in the hope that the findings in some stages may throw light on the question, and a comparison must be made between the phylogeny and the ontogeny in the animal most concerned—the human being.

It may be well to state in advance how it comes that I interest myself in the province of the ophthalmologist, a field so far removed from my present line of research. I suffer from an exophoria of from 4 to 8 degrees, and while at Freiburg in Baden I consulted Professor Axenfeld. Here I learned that the insufficiency is most marked when the eyes are raised, and I was advised to hold the head well back and look down a little even when doing distance work.

About that time, an exhaustive article by G. Lindsay Johnson[1] appeared on "The Comparative Anatomy of the Mammalian Eye." It is replete with beautiful illustrations of the ophthalmoscopic appearance of the retina of practically all the mammals in the London Zoological Gardens. A chapter is also devoted to the influence of domestication and a part to the position of the eyes. Several interesting ideas developed in my study of this paper, and these, together with some grosser facts in comparative anatomy, I submitted to Professor Tichener of Cornell University, to whom I express my thanks for valuable suggestions and criticism.

I hardly deem myself qualified to discuss the practical outcome of the hypothesis I present. There may or may not be a grain of truth in the deductions from the facts, which I hope to give clearly and concisely, in this paper. A larger and more exhaustive treatise is needed to bring out all the points in detail and a greater amount of material and more thorough investigation are required than I can offer at this date. At the conclusion of the discussion on the comparative anatomy, I will review briefly the grounds for assuming that the human eye is subject to abnormality because of the domestication of civilized man from an aboriginal form—an idea which may not meet with unanimous approval. Civilized man, to my mind, is undoubtedly a domesticated aborigine and therefore is subject to the same changes from unnatural environment to which any domesticated animal is subject.

In the lower forms the eyes are placed on the sides of the head and the animal is, more or less strictly speaking, monocular in its vision. In the fish, for example, the eyes, although intrinsically different from the mammal's are moved by the same muscles, which possess relatively the same origin in the orbit and the same insertion into the eyeball. I will only consider the internal and external recti because they are the most affected in the changes in position of the eyeball.

In the pilot fish the optical axis of one eye passes through that of the other—a full 90 degree divergence

1. Transactions of the Royal Society of London.

for each eye. The eyes look out (lateral) and are capable of little movement, probably because the range of vision in the fish is necessarily small. The movement of the eyeball is practically confined to a forward one. The eye fits snugly into the rounded orbit, and the two recti, internal and external, take their origin well back on the posterior (caudal) wall. The insertion of these two muscles is about the same in the human being—equidistant from the corneal margin into the sclerotic.* The line passing through these insertions falls within the plane of muscular attachment, and is at right angles to the apparent optical axis—the direction in which the eye looks. The origins of the internal and external recti are about the same, but the internal is longer and swings around the back of the eyeball to the anterior (cephalic) insertion, while the external is short and direct. The arrangement shows clearly that the internal rectus is more powerfully placed and has the greater range of action—anatomically, leaving the check ligaments out of the question, the direct opposite of the human. The animal tends to see what is in front of it rather than what is behind, probably relying on the special development of the nervous system for protection from that quarter.

In birds, the owl family excepted, the arrangement is similar to that in the fish, except that the anatomy of the eye is intrinsically different and that the range of motion, because of the larger orbits, is necessarily greater. The bird, like the fish, is monocular in vision. The orbits are perhaps a trifle less divergent and comparative measurements must be made to determine this point. The internal and external recti have the same relation to the orbit and eyeball as in the fish and reptile.

Passing from bird to mammal and through a series of the mammals from types with the most divergent eyes to the highest forms with sustained binocular vision, I note, according to Johnson, the divergence in each eye, for the hare, 85 degrees; for the giraffe, 72 degrees; for the skunk, 45 degrees; for the pig, 33 degrees; for the dog, 20 degrees; for the cat, 10 degrees; for the lemur, about 5 degrees, and for the monkeys and apes, as in man, no degrees. As the animal advances in the scale, the eyes become more ventrally placed, the exceptions being found in the monotremata and the bats, where the position of the eyes is probably a special development dependent on the habits and environment of the animals.

The hare, with eyes each 85 degrees divergent, enjoys a visual field of 190 degrees for each eye. The fields cross in front as well as in back and the animal sees the whole horizon without moving the eyes or the head, a feature necessary to the protective motionless position and unimpeded flight. This animal, according to Johnson, is probably capable of receiving sharp impressions, even to the periphery of the visual field, and for this reason there must be some binocular vision for objects directly in front and in back. Probably no mammal is strictly monocular, although that is the usual mode of vision.

As we pass from the lower forms to the higher, the visual field becomes more and more contracted and the animal moves the head and the eyes, preferably the former, to make up for the deficiency. Up to the *Simiæ* the eye movements are not co-ordinated and are merely accessory to the head movements. In the dog, for example, the head movement is well developed and a decided preference for monocular vision is displayed. This is also manifested in the cow—the animal always turns the head and is content with monocular vision. In the cat the divergence is not so marked—first, because it is a higher form than the dog, although not nearly so well domesticated, and second, because its prey is small and usually directly in front of it.

In the next highest family, the *Prosimiæ*, we find the nearest approach to the monkey. These small nocturnal animals (lemur, tarsius, etc.) have a divergence of about 5 degrees for each eye. In the monkeys, apes and man, the divergence is entirely overcome and the eyes are placed with parallel axes. The plane of muscular attachment remains the same at right angles to the apparent optical axis in all mammals, but the eyeball in man is rotated through 85 degrees on comparison with the hare. All mammals with eyes of less than 25 degrees divergence each are twilight animals, with the exception of the *Simiæ*.

In the advance from the *Prosimiæ* to the *Simiæ* several marked differences appeared. The *Simiæ* were probably developed from a twilight form into a daylight type and a portion of the retina lying directly in the visual axis was specialized for acute daylight perception. With the sustained parallel axes, the co-ordination of the eye movements was developed. The macula lutea, sustained binocular vision and co-ordinate eye movements are therefore confined to monkey, ape and man.

During the rotation of the eyeball to the front, the orbits also became less divergent. While in the fish the eye fits the orbit, in mammals the orbits become relatively larger and more pyramidal as the form advances. The primitive origin of the internal and external recti, however, is maintained. Both muscles elongate progressively, particularly the external rectus. The orbits approach each other until the two inner walls are parallel and in relation with the nasal fossæ, as in man. The outer wall is directed at an angle of 40 degrees to the inner, giving an orbital axis in the human being of 20 degrees divergence from the middle line.

If a human eye were to be placed in an orbit of 20 degrees divergence and if the recti were of equal strength, the optical axis would correspond with the orbital axis, the plane of muscular attachment would be at right angles to both axes, the recti would be of equal length and the eye would be 20 degrees divergent, as in the dog, and muscularly balanced. The 20 degrees divergence is overcome by a rotation of the eyeball and, undoubtedly, is phylogenetically due to muscular pull. As the muscles rotated the eyeball, however, they obtained ligamentous support from the walls of the orbits—the check ligaments—which "took in the slack," as it were, and limited the amount of return to the former state. In every mammal there is a tendency toward a reversion to a lower form and the apparent optical axis is less divergent during life than after death or during a state of perfect muscular relaxation—sleep or anesthesia. The ligamentous support limits the amount of divergence and theoretically no mammal should revert to a greater degree of divergence than the next lowest form. In man, for example, the latent squint normally should not be more than the position of the eyes in the *Prosimiæ*, or 5 degrees divergence for each eye—exophoria in contradistinction to divergent strabismus. In dogs, as in monkey and man, the eyes roll out during sleep and anesthesia, or after death.

* The equi-distant insertion of the recti muscles from the corneal margin is granted to avoid complicated angles. The spiral line of insertion is too well known to need any mention.

In the development of the human embryo we find a similar picture to that described for the ascending scale of mammals. The eyes develop on the sides of the head, as in the fish—a relic of our ancestry. Gradually, with the formation of the face, they are brought around to their permanent ventral position and are in place about the end of the second month. In this the ontogeny agrees with the phylogeny and the rotation as described in the mammals is also to be found in the developing embryo.

With the upright position a second displacement of the eyeball was necessary. The eyes in the lower mammals are directed on a plane with the horizontal vertebral column or above this plane. With the assumption of the upright position, the head was not tilted forward to an angle of 90 degrees to the animal head, and the eyes were depressed to maintain the horizontal plane. This naturally involves a strain on the inferior rectus. In the relaxation occurring during anesthesia the eyes of the monkey, as of the man, roll up and out—the position of perfect muscular rest and ligamentous support. In the horizontal position, the eye is held by the internal and inferior recti, but when the eyes are raised the strain, otherwise shared by the inferior rectus, is thrown entirely on the internal rectus and for this reason the latent divergence is more marked when looking up. The latent squint is therefore indirectly affected by the upright position because of the poorly balanced and heavy head tending to drop forward, which tendency is made up in an elevation of the eyes.

The reversion of the eyes to a former position is not entirely confined to the amniota. In the flat fish family (*Pleuronectidæ*) during the earlier periods in the development, the fish is like any other fish. When it reaches a certain stage it lies down on one side on the bottom. The eye that is directed down is then pulled to the top side of the head, mostly through muscular effort, and in the adult living flounder the eyes are side by side and are parallel or even convergent. On the death of the fish they become widely divergent, illustrating the tendency to assume the original position and acting similarly to the divergence in the eyes of dogs, monkeys and man.

The stimulus to the animal to see what is directly in front of it attains its highest development in the Simiæ who use both eyes. Man, however, carries the matter still farther and develops an inco-ordination of the eye muscles to enable him to see things which are close by with both eyes. The monkey can only maintain a limited convergence for a short time and man, as Johnson says, is the only animal with sustained convergence. As man advanced, the near work became more and more essential and convergence was correspondingly more developed until at the present day the eye has practically become a contact organ, as well as one of distance perception. (Emmetropia.)

Convergence is ontogenetically a trained effort and, like any trained effort, is best developed when begun early. The training of convergence ought, therefore, to be marked in the precocious myopic child who prefers to read rather than to play, and, because such children begin the near work at a very early age, the latent insufficiency should theoretically be less pronounced than in the hyperopic individual whose refraction interferes with this exercise. Whether the distortion of the eyeball has anything to do with the matter is still to be determined. The matter is still hypothetical as far as I am concerned. I shall endeavor to measure volunteer students for the grosser errors of refraction and for the amount of latent squint in each case and shall present my findings in a future paper.

Sightseer's headache, therefore, is not due to the strain on the elevator muscle, as suggested by Snell, but to the greater strain on internal rectus to overcome the more marked divergence in the raised position of the eye. Convergence when looking up is an appreciable effort and, granting that there is always a muscular pull necessary to hold the parallel axes, this slight exertion is also increased.

There is a tendency toward a divergence in all mammals. In the highest form the muscular effort is increased because the orbits are not capable of any less than 20 degree divergence and a rotation of the eyeball is necessary. The check ligaments are probably the means of limiting the divergence in muscular relaxation. The latent squint is overcome in man mostly through an early training of the adducting muscles for convergence and, finally, exophoria has a phylogenetic origin which is substantiated in the ontogeny and is an inheritance from a lower form.

The explanation of the refraction errors is not so simple. Are they, as Johnson suggested for animals, a result of domestication? What is domestication but an adaptation to unnatural and false surroundings with more or less complete interference with the laws of natural selection. The survival of the fittest, as far as the eyes are concerned, is undoubtedly interfered with in the present civilized state. Rabbits, dogs and horses are subject to myopia and astigmatism—a difficulty unknown in the wild state. All wild animals, with few exceptions, and those to be found mainly in the semi-aquatic forms, are hyperopic and anastigmatic, including savage man. With domestication the same eye errors arise in the animals that occur in educated man, and it appears that the individual with degenerate eyes is better fitted to survive than his far-sighted brother.

Emmetropia is an adaptation of a far-sighted eye to near work, through development of the muscle of accommodation. Is this any different from the arrangement found in the seal, where a slit pupil and highly developed accommodative apparatus overcomes the enormous astigmatism? The normal eye was not made for near work and must be considered a mildly hyperopic eye with a limited degree of latent lateral squint. The adaptation of the eye as a contact organ seems to be inevitable. This is the age of the short-sighted with the large amount of necessary reading, the instruments of precision and the arts involving the near work. The oculist may step down the hyperopic eye with the + spherical, but the muscular insufficiency always remains the unsurmountable obstacle. As age advances the eye loses accommodative power and near work is made still more difficult in the approach to the animal normal. It appears that the more perfect our eyes are the less they are adapted to the present conditions.

It leaves the problem in a very interesting situation. Are we voluntarily to become a race of myopics or are we going to hold to the animal normal? The answer is obvious, and to achieve this result two things must be accomplished—as far as possible the eye must be fitted for the present conditions, and a reasonable method must be found of doing a large part of the near work in the distance. The errors in refraction may be corrected, but distance work decreases the strain on the already poorly placed internal rectus muscle.

The subject is not without its pedagogic side, but this

must be deferred until later, when all the inferences shall have been verified or disproved. For further investigation of the comparative anatomy, I have two fishes with normal eyes and the complete series of the flounder, including all the changes in position from the beginning to the completion of the wandering. In birds, I have also two species with normal eyes, and the owl as the aberrant type. In mammals, I have the hare, skunk, pig, dog, cat, lemur and man—of the latter embryo and adult specimens. This material will be supplemented by investigations on normal individuals in order to obtain the grosser refraction errors and the muscle status.

I shall be grateful for any criticisms or suggestion regarding the ideas advanced in this article or in the methods to be followed, and I shall take pleasure in replying to and in acknowledging such communications.

SOME ASPECTS OF SCIENCE AND FALLACY AS THEY RELATE TO MEDICINE.*

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"Faith, fanatic Faith, once wedded fast
To some dear falsehood, hugs it to the last."

In the preparation of this paper I have had in view several motives. First, to emphasize the fact that the practice of medicine consists simply in the intelligent application of common-sense principles and forces. It has nothing of the mysterious and supernatural about it. The further one gets from common sense the further he gets from scientific medicine.

Second, to call general attention to the value and to the dangers of that force which we call "suggestion." For, while the forces of nature intelligently employed may result in great good, wrongly employed they are equally as potent for harm. Take whatever force or power you will and reason out the principle; see if these powers wrongly used are not equally as dangerous as they are beneficent when rightly used. Merely for illustration, I will mention fire, water, powder, dynamite, steam and electricity. Anything incapable of doing harm is also incapable of doing good. To argue, then, that anything may do good should suggest that it may do harm. Yet many people seem to think (and it is because they are ignorant of the forces) that they can try with impunity any quack remedy. We see the results often when it would not be humane to the victim to relate the consequences.

Third, I wish to call attention to the danger of drawing deductions from imperfect knowledge or when unfitted by education or training to discriminate. As the same end is at times obtained by widely different means, the question is suggested, what, then, is the force or what are the forces giving rise to the results? These are usually the curative power of nature; in some, nature plus suggestion, etc. On the other hand, in many instances, there is self-deception. Just as in consumption the sufferer often fancies he is improving, so thousands of certificates of cure have been obtained from the diseased whose troubles were never delayed and who never received the slightest benefit from the treatment. They are like "Sir William Edward Peary and his party, who were going straight towards the pole in one of their Arctic expeditions, traveling at the rate of 10 miles a day, while the ice over which they were traveling was drifting straight to the equator at the rate of 12 miles a day, and yet no man among them would have known that he was traveling 2 miles a day backward unless he had lifted his eyes from the track in which he was plodding."[1]

"The science of medicine had its birth in necessity."[2] It has materially lengthened the average duration of human life, and rendered worth living the lives of countless thousands. It has reached a point in its development where its claims as a science are generally acknowledged. Yet, as from primeval times to the present, fallacies have so often been exploited as infallible cures, I think an analysis of some of them may prove interesting. With each changing cycle some new error is born, to be in turn clasped to the bosom of those "who follow the lead of their emotions" rather than the dictates of common sense and, as Gould states, "the emotions are good incentives, but poor guides."

Four hundred years before the birth of Christ, Hippocrates wrote: "Life is short and the art long; the occasion fleeting; experience fallacious and judgment difficult." Though the truth of this aphorism, which has come down to us through the centuries, is fully appreciated by the thoughtful physician and is as true now as when written, it is really wonderful to note, even in this advanced age, the ease with which so many people succumb to "fallacy" and, finding a sprig of truth, at once mistake it for the whole tree, trunk, roots and branches, and attempt thus to make the part greater than the whole. The scientific physician is neither the slave of custom nor the victim of circumstance. In the pursuit of his calling, he brings to his aid many forces the logical application of which tends to alleviate human suffering and to dissipate disease. Wedded to no creed, handicapped by no narrow dogmas, above the plane of blinding prejudice, he toils on, bringing to bear on the case in hand whatever force or forces reason and wisdom have shown to be of value. Even with this, "it takes half a lifetime to learn how not to make useless mistakes." (Gould.)

In regard to the many panaceas that have at times claimed the attention of the public (besides the curative power of nature, which many seem never to have considered), one dominant force pervades them all. A force which has been used and utilized from the days of Hippocrates to the present time. A force which has been used ignorantly by the untrained, who never appreciated its character, its source, its powers or its limitations. It runs like a thread through every method of treatment, wise or otherwise. It is this force and nature which give a life-history to every new form of treatment, however absurd it may be. I refer to the power of "suggestion," now vulgarly known as the "mind cure." Its use is as old as history, but it is a force hardly yet fully appreciated by some and by others employed to a degree beyond the warrant of reason. "The earliest practitioners of medicine concerning whom we have any authentic information were the Æsclepidæ, or priest-physicians, who endeavored to cure the sick partly by superstitious modes of working on the imagination" (mind cure), "and partly by more rational means, suggested by observation and a patient study of the phenomena of disease."[2] That "suggestion" is a power for good in suitable cases every physician knows: that it is also a power for evil the many wrecks of Christian

* President's address, read before the Middle Tennessee Medical Association, 1904.

1. Holmes: "Currents and Counter Currents."
2. Adams: "Life of Hippocrates."

science and like methods of treatment abundantly attest. The desirability at all times of a proper mental attitude is suggested in the legend of "Pandora's Box." She unfortunately turned loose on the world all the evils therein contained, but shut the box just in time to prevent the escape of "Hope." The good effect of mental measures has been recognized for centuries, not only for its influence on the body but its influence on morals as well. For instance, in Philippians, fourth chapter and eighth verse, the advice is given, "whatsoever things are true, whatsoever things are pure," etc., "think on these things." Suggestion is the secret power of the mother's kiss, which so quickly dissipates the pain of the minor bumps and bruises of childhood. It is the same power, acting through the lullaby of the nursery, that so quickly sends the child to the land of peaceful sleep. Songs often used for the same purpose gain by repetition in suggestive value. I suppose we have all been struck by the monotonous character of these songs. This serves a distinct purpose; the monotony of rhythmical sound through its influence on the brain enhances the sleep-producing power of suggestion.

These things all point to the influence of "suggestion," which I shall define as we usually attempt to use it in the treatment of disease, that influence which incites in the mental makeup hope, confidence, effort, determination, expectation or belief. This is usually accomplished through "assertion," repeated and re-enforced in every possible way. The forms of suggestion are many and the object aimed at generally suggests the method. At times almost any change in the mental state will accomplish the desired result. The main object is to change the whole current of thought from a morbid to a wholesome nature. Now, strange as this may seem from a casual examination of this form of force, it is a power that may be abused and may result in great and even in lasting harm. Carried to extremes, it leads to neurasthenia and to other forms of nervous unbalance. "But wise men have long ago come to the conclusion that truth does not dwell with extremes."[3] Imagine, for instance, the absurdity of the Christian scientists in denying the existence of pain and of disease of which their followers are constantly dying. Does this not prove mental unbalance? Yet who would deny that the "mind cure" in trained hands has its mission in therapeutics? "Mind cure, so-called (says Mitchell), has in some shape its legitimate sphere in men who know their profession." Further, he states, "I can not leave this subject without a further word of solemn warning. In my youth we had mesmerism with its cures, then we had and have spiritualism with its like pretensions. From time to time we have had faith-cures. They come and they go and have no stable life. The evil they do lives after them in the many mental wrecks they leave. When the charlatan, Newton, was ordering every class of sick to get well, I was called on to see case after case of the most calamitous results on mind and body. Now and then he had the luck to meet some one who was merely 'idea-sick,' a class we know well. Then he made a cure which would have been as easy to me as to him. I made much inquiry, but could never find a case of organic disease with distinct tissue changes which he had cured. A man with hopeless rheumatic alterations of joints was made to walk a few steps without crutches. This he did at sore cost of pain, and then came to me to tell his tale, with a new set of crutches, the healer having kept the old set as evidence of the cure. And now we have the mind cure, Eddyism and the like, a muddle of mystical statements, backed by a medley of the many half-examined facts which show the influence of mental and moral states over certain forms of disorder."[4] Mitchell states the case well; while it has its place in the hands of those "who know their profession," its attempted use by others frequently ends in disaster.

Goodell states in his article on "Nerve Counterfeits"[5]: "I know of another sofa-ridden lady of wealth who for many years had been treated by some of our best gynecologists. She was put on her feet and made well by a family quarrel resulting in a prolonged lawsuit. These are the cases which are so constantly being cured by mesmerists and itinerants, by faith and by pilgrimages." Archibald Church[5] states: "Suggestion, however, is a mighty aid to the physician, and without producing hypnosis positive and intelligent assertion can accomplish all that is likely to be done by hypnotism short of the somnambulistic stage. A fair realization of the part suggestion plays in therapeutics is one of the recent achievements of the most progressive medical minds." Again: "No scheme of treatment in neurasthenia is complete that ignores the mental element of the disorder." Again: "Recognizing in hysteria a mental disturbance principally, the treatment must be psychic. Methods are usually successful in proportion as they are novel to the patient, strike the fancy and stimulate the imagination."

Charlatans recognize this, hence the peculiar garb they affect; their long hair and the many other ruses practiced, seeking thus the aid of suggestion. So, it may be noted, "suggestion" is practiced in different ways. To the old question, "What's in a name?" I would answer, "Much." The quack appreciates this, and so his medicine is given some Indian or other uncommon name, the more suggestive of mystery the better. None of us are entirely free from superstition and, to some extent, such things appeal to us all.

To be a little more specific, I will briefly mention a few of the remedies that have been brought forward and that have at times achieved great reputation. First, the "weapon ointment."[6] This ointment was applied not to the wound but to the weapon that caused the wound. At one time it had great reputation and contained substances addressed specifically to the imaginations, as portions of mummy, of human blood, of "moss from the skull of a thief hung in chains." The wound was washed and bandaged and the ointment applied to the weapon. So here we get the advantage of the healing power of nature and suggestion. I will merely allude to the "royal touch" for "King's Evil" (scrofula), in vogue in England from the time of Edward the Confessor to that of Queen Anne. Besides touching the patient, a gold piece was ordinarily hung about the patient's neck. From this treatment (nature and suggestion), many immediate cures were reported. "Indeed, according to the statements of the advocates and contemporaries of this remedy, none ever failed of receiving benefit unless their little faith and credulity starved their merits. Some are said to have been cured immediately on the very touch, others did not so easily get rid of their swellings, until they were touched a second

3. Gould: "Borderland Studies."

4. Mitchell: "Doctor and Patient."

5. Nervous Diseases.

6. I am indebted to Holmes' Essays (Homeopathy and Kindred Delusions), for my accounts of the "Weapon Ointment," "Royal Touch" and "King's Tractors," some of which is taken verbatim.

time. Several cases are related of persons who had been blind for several weeks and months and obliged even to be led to Whitehall, yet recovered their sight immediately on being touched, so as to walk away without any guides." So widely was this fallacy believed that in the course of 12 years nearly a hundred thousand persons were touched by Charles the Second.

While this seems strange to us, stranger things are believed even in this age of enlightenment. Nature and suggestion were here the only possible forces. Of course, among many such cases and others to be mentioned there were many untimely deaths and much useless suffering. It reminds one of a man struggling in the water while senseless friends, instead of throwing him a rope, only encourage him with their shouts. The encouragement is good enough as far as it goes, but it needs to be supplemented. Of course babies, except in the lines indicated and those with clouded brains, as from fevers, could not possibly receive benefit from suggestion, and nature was then the sole dependence. While in ordinary diseases "suggestion" may or may not be of benefit, its field of great usefulness is in cases of disease more imagined than real. Those who are "idea-sick," or who suffer from "dream pains," and are frequently relieved by a hypodermic of water and, strange to say, there are others in whom opiates pushed to the limits of safety have no apparent control over the pain(?). These cases sometimes deceive for a time the most astute physicians, and we all know that in many instances of a supposed illness or rather when the disorder is entirely or principally mental, it is not prudent or wise to so inform the patient or the family; sometimes because we would not be believed, or because it would sacrifice the friendship of the patient or the family, or because it would uselessly mortify the patient, for she, too, is often deceived and intends no deception. Often to tell the patient would be to exaggerate the condition and defeat the plan of cure. It is possible that in these cases a future pathology may reveal some abnormality in the chemistry of the secretions.

The success of any given treatment is merely a matter of percentage. Cases of pneumonia, of typhoid fever, of consumption, etc., not infrequently recover without the aid of medicine or anything else except nature, but who in his right mind would be willing to pass through such an illness without the aid of a skillful physician, for his chances of recovery are then correspondingly enhanced?

"King's tractors" consisted of two pieces of metal, iron and brass. These were laid on the patient and were supposed to exert great healing power. Their period of popularity was from 1796 to 1811, and during that time 1,500,000 people in Great Britain alone were supposed (according to their publications) to have been cured by them. Nature and suggestion here could have been the only aids. But think of the useless suffering and sacrifice of life that must have occurred among those who were foolish enough to risk such a folly. The originator of these was a shrewd Yankee, who became rich from the credulity of the people. Clergymen were frequently given a pair along with the receipt of the usual cost price, five guineas. Many testimonials set forth the wonderful powers and virtues of these worthless objects and physicians were bitterly denounced for their skepticism. Even when physicians made imitations of wood and obtained the same results the storm of indignation against them was not allayed. At this day it might be possible to find a pair among the collection of curios of some medical man along with Mrs. Eddy's book, works on osteopathy, the electropoise, and other such things that are of peculiar psychologic interest to many of us.

Strange to relate, clergymen and religious bodies are usually first approached by such people and have proved the most credulous. Religion, unfortunately, has so often lent its influence to charlatans, or been designedly used by them, that medical men look askance at the man who mixes medicine and religion too freely. Religion should be a thing entirely apart from the practice of medicine and those who cherish its ideals should jealously guard it from the sordid, who would use it as a cloak for ulterior purposes. In reading the history of fake cures, one notes with a feeling of regret the number of certificates of clergymen as compared to those of other people. So marked has this been that it has long been a matter of general comment. They have been trapped into this by noting recoveries from real or apparent diseases and have gone no deeper into the matter than *"post hoc ergo propter hoc."* Their intentions are good, but the evil they do is enhanced on account of their prominence.

Homeopathy, which Holmes said consisted of "sugar of milk and a nomenclature," has changed much of recent years. The most advanced homeopaths of to-day differ from us (in the practice of medicine) only in name. Most of them have now renounced the laws of Hahnemann and there is really no longer any excuse for the separate existence of the schools.[7] Many of their most successful practitioners and teachers use the same text-books and have simply changed their signs.

Of course, as a curiosity, one occasionally sees a true homeopath, but Mrs. Eddy boasts that Eddyism has practically usurped his place. As a matter of fact, the only advantage the strict homeopath had over Mrs. Eddy in the treatment was in diet and hygiene and in not trying to urge patients to that mental attitude which if completely attained must mean insanity—for no sane person could accept and believe such utter foolishness as Mrs. Eddy teaches. The Eddyites deny the existence of disease and when one is ill claim that he is not sick but only thinks so. They say that there is no such thing as poison, but that strychnin, arsenic, etc., become poisons just because they are thought to be so. This sometimes leads to rather confusing results. The following story from Mark Twain illustrates this point: "A certain mule was being fed on popcorn, when his well-stored crib caught fire. The heat caused the corn to pop, and as it fell back on him the mule, thinking he was in a snowstorm, froze to death." This, without any exaggeration, is a fair sample of Christian science logic. It reminds me of the comment of the *Medical Record* on a new form of treatment just being advocated, which was specially ludicrous. The *Medical Record* stated that the fellow would get rich if he could "keep his face straight long enough."

Mrs. Eddy, Dowie, and the fellow who gives absent treatment all seek the same end with somewhat different methods. To quote a lay writer and student of such methods, "Each of the indefinite number of sects of mental healers now in evidence in this country tells us that it has a law of its own, and that it is the only genuine article, all the others being only feeble imitations or wholly fraudulent, wicked and diabolical. They

7. Quine: "Reasons I Am Not a Homeopath," JOURNAL A. M. A. April 29, 1899.

agree in but one thing and that is in hating the medical profession; and they hate but one thing more than they do that profession and that is each other."

Manipulations and movements are forms of force long used by the medical profession or under their direction. They are but branches of the tree of medical science and have their legitimate place as therapeutic agents. They also have their dangers, as is well known to medical men, yet the osteopaths have now brought these forward as cures for all ills. From them one gets the benefit, if benefit follows, of three forces, namely, nature, massage (and medicogymnastics) and suggestion. Cowling used to say: "Massage is a very good thing for a lazy man." This indicates partly its sphere of usefulness, but it is (rightly used) a power for much good in suitable cases. It is of real and decided value in quite a number of chronic diseases, but no osteopath, with his meager training, is able properly to select the cases. Some of their egregious blunders have come under my observation, and they would have been ludicrous had they not been so serious. The graduates in massage and Swedish movements are far more thoroughly trained than are the osteopaths and, in addition, they are not falsely taught.[8]

I would like, did time permit, to go a little further into these subjects, as well as to discuss other such methods in vogue in the treatment of disease. Many of them, as well as some I have mentioned, in many instances serve only to subvert the attention of the patient, while nature does, or fails to do, the work.

I would have no one think that any regular physician considers medicine a complete science. It is far from it. Neither would I have one think we are not cognizant of our many deficiencies. The very purpose of this association and of other similar bodies is to overcome these defects as far as possible. Even with these aids and added years of study and experience we can never even hope to perfect ourselves in this most difficult field of human endeavor.

THE X-RAY TREATMENT OF MALIGNANT GROWTHS.*

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I began *x*-ray work as a skeptic, doubting the therapeutic value of the ray. After giving my first case of epithelioma six exposures and seeing the scab become thicker, I advised the patient to have the growth excised. This was done and I examined the tissue microscopically and was impressed with the decided retrogressive changes observed in the carcinomatous cells. The next epithelioma I treated with more confidence, and after six weeks' treatment it had healed.

The results of the practical use of the ray as reported by different operators have varied greatly. The general profession has been misled by the over-enthusiastic as well as by the pessimistic operators, so that the true value of the ray has yet to be demonstrated. It is not a magic light that will heal every malignant growth to which it is applied, nor should it be placed on the shelf with other discarded therapeutic agents. It is a natural force of great variation, having a decided influence on living organic matter.

The microscopic changes in the tissues which have been exposed to the *x*-ray have been studied and reported by many observers, and their observations, in general, agree. It is these observations which should give us the basis for the possibilities and limitations of the ray.

To determine the value of the ray as a therapeutic agent, we have to consider first the factors concerned in the production and variation of the *x*-ray and the methods of the application in treatment; second, the histologic changes due to the *x*-ray, and third, the nature and location of the growth to be treated.

The *x*-ray is capable of wide variation, both in its penetrating quality and in its intensity or effective energy. Among the variable factors which have to be considered in each treatment are the voltage and amperage of the current supplied to the primary, the number of interruptions made by the interrupter, the resistance in the secondary circuit represented by the number of spark gaps in series, and the degree of vacuum of the tube, the distance of the tube from the surface to be exposed, and the duration and frequency of the exposures. The successful application of the ray is dependent on the proper co-ordination of these factors for each individual case.

Until recently, there was no way to measure the energy given off from a tube. This could only be approximated by one's experience with his individual appalate or may even increase the vitality of the less differa distinct advance and enables one to measure the dosage with a fair degree of accuracy. The technic is being steadily improved by experience and the proper appreciation of the physical laws governing the ray, especially that the intensity varies inversely as the square of the distance.

With so many variable factors to be considered in the proper application of the ray, there is no wonder that the therapeutic results of different operators have been so inconstant.

According to the effective energy given off from a tube, there are decided changes in the tissues as revealed by microscopic examination; cells are affected and undergo atrophy, or granular degeneration. The nuclei stain feebly, become swollen, vacuolated and disappear or break into fragments. The cells swell, lose their outlines, become granular and disintegrate. These changes are especially noticeable in the cells of the glands, hair follicles, the skin and those lining the blood vessels, but to a less extent in the cells and fibers of muscles and connective tissues. The effects on these latter may be secondary, dependent on the inflammatory process resulting from the death of the cellular elements. There is more or less round-cell infiltration depending on the degree of reaction. The ray may stimulate or may even increase the vitality of the less differentiated tissues.

From these observations, it is evident that the elements of the tissues which are most affected by the ray are the cells and in the proportion that they exhibit the manifestations of life. Dead organic matter is not influenced by the ray. Another evidence that the ray acts on the vitality or life of a cell is the fact that a tissue, immediately after a destructive exposure to the ray, shows no macroscopic or microscopic change and it is only after the lapse of several days that the changes consequent on the death of the cells begin to appear. We would conclude, therefore, that the tissues most influenced by the ray are those having a large proportion

8. Jakob Bolin: JOURNAL A. M. A., April 6, 1901.

* Read by invitation before the College of Physicians, Philadelphia.

of cells whose vital processes are very active. Such tissues are found chiefly in malignant tumors, carcinomas and sarcomas. It is on them, therefore, that the ray has the most decided effect.

Sarcomas, as a rule, are more deeply seated than carcinomas; they contain more intracellular material and more blood vessels, and there is less rapid proliferation of the cells as evidenced by the fewer mitotic figures. These facts may explain why more carcinomas than sarcomas have been healed by the ray.

The benign tumors are composed largely of intracellular substance with a small proportion of cells not actively proliferating. They are, therefore, only slightly or not at all influenced by the ray. We thus understand why epithelial tissue, on account of the large proportion of cells, is affected more than any other normal tissue, and why the cells of the glands and hair follicles, because their vital processes are more active, succumb more readily to the ray.

If now, as it seems, the ray affects cells in proportion to their vital activities, it is to be expected that the actively proliferating cells of the malignant growths will be more susceptible to the influence of the ray than the cells of the skin and subcutaneous tissues which exhibit the vital manifestation in a less degree. This explains the apparent selective action of the ray for malignant growths. If the ray is properly applied, a tumor of this kind may be destroyed and may disappear without any destruction of the surrounding normal tissues.

From these considerations we conclude that the prognosis in the treatment of new growths depends on the character of the growths and on their accessibility to the proper quantity of radiant energy. Since we have shown that the tissues composing the malignant growths are especially susceptible to the ray, the prognosis in their treatment depends on their accessibility to a ray of sufficient energy. Success or failure depends on the accomplishment of these two objects by the proper coordination of the variable factors in applying the ray. The light may have the proper energy, but unless it reaches the whole of the tumor, especially the periphery, where the most rapid growth takes place, it will be of no avail. On the other hand, the light may reach every part of the growth, but unless it has sufficient energy it will not accomplish its work.

From what has been said it may be inferred that the growths most readily and most uniformly healed are the superficial carcinomas and superficial sarcomas. This is the result of actual practice.

The deeper the growth the more doubtful becomes the prognosis because of the difficulty of carrying deep into the tissues a ray of sufficient energy to destroy malignant cells without destroying the overlying tissues. That moderately deep growths can be affected has been shown by many well-authenticated cases. The difficulty has been in establishing a technic by means of which results may be obtained with a fair degree of constancy.

For example, if a carcinoma four inches below the surface is being treated and the time required to destroy carcinomatous cells on the surface be one hundred (100) minutes, with a tube at a distance of ten inches, let us assume that one hundred and eighty (180) minutes will be required to destroy the healthy cells, the tube being at a distance of ten inches. According to the law of the variation of intensity, the equivalent of one hundred (100) minutes at ten inches is two hundred (200) minutes at fourteen inches. In other words, to destroy the growth at fourteen inches there must be an exposure of two hundred (200) minutes, which would cause a necrosis of the overlying tissues. But if we place the tube eighteen inches from the surface the growth will be twenty-two inches from the tube. The number of minutes required to destroy the growth will be five hundred (500), and the number of minutes required to produce a necrosis on the surface at eighteen inches will be six hundred (600). Thus we see that it is possible, by increasing the distance from the tube, to destroy a deep growth without destroying the overlying tissues. What is impossible to accomplish with a tube at ten inches is possible with a tube at eighteen inches.

In the example cited above there is a margin of one hundred (100) minutes. This can be drawn on to compensate for the loss of energy due to penetration. Another point to be considered in the treatment of deep growths is that the ray must be more penetrating. The more penetrating a ray the less is its effective energy, therefore due compensation must be made in the duration of the exposure.

In the preceding remarks I have attempted to give a clear idea of the *x*-ray as a therapeutic agent and the factors to be considered in its production and application and also to explain its influence on living cells and why it is especially adapted to the treatment of malignant tumors. It now remains for us to consider its use in the treatment of these conditions as compared with other therapeutic agents.

For superficial growths the ray is indicated because it is so uniformly successful, its application is painless and there is less scar and deformity and the growth is less apt to recur than with any other form of treatment.

For deep growths, until we can show more uniformly good results, radical surgical procedures should be recommended. We must give the patient the benefit of the probabilities and not possibilities. It is, however, but rational that the surgical procedure should be followed by sufficient *x*-ray exposure to destroy malignant cells several inches from the surface. This is possible, as has been shown, and the patient should have every possible chance to have the malignant cells completely eradicated or destroyed.

Inoperable cases should be treated with the ray because remarkable results have been obtained and the most distressing symptom, pain, may at least be relieved. It is by means of these cases that we must demonstrate the value of the *x*-ray and so extend its usefulness.

In conclusion, I would reiterate that we have in the *x*-ray an agent that has a specific and destructive effect on malignant tumors by taking away the life of their cells, and that its application in treatment is limited only by the ability to reach the growths with the proper amount of energy and safety to the patient.

This mysterious form of radiant energy is still in its infancy, yet, what it has already accomplished makes us hope and expect that by careful study and conservative practice we can bring it more and more to our aid, especially in destroying the malignant tumors, which are mercilessly attacking their victims with increasing and alarming frequency.

Many cases of skin irritation in the fall in Canada are said to be due to the presence of particles of the Canadian thistle in the wool from which winter undergarments are manufactured.

THE FEAR OF DEATH:

MORBID MANIFESTATIONS OF THE INSTINCT.

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The instinct of life and the fear of death, the last but a manifestation of the first, occupy and have always occupied a supreme place in human consciousness. To mitigate the pain inspired by fear of death metaphysicians have goaded their wits since the beginnings of history, while believers in various religions, by affirming the existence of man beyond the tomb, have either diminished or increased the dread of dissolution, depending on whether or not the dogma was believed and whether happiness or the reverse was predicted.

This article is a consideration of the origin and nature of the morbid exaggeration of the natural, instinctive fear of death shown by some individuals and which, in some cases, amounts to a dominating tyrannical besetment, or to a monomaniacal obsession. This morbid dread of death is a psycopathic condition and concerns chiefly the neurologist and alienist, but any physician suddenly may be called on to treat it.

The instinctive fear of death, like the pain sense, is necessary to the preservation of the organism; the one is a psychical, the other a physical warning; the exaggeration of either is morbid, tragical. In animals, at least in those more highly organized, the dread of death plays a similar part, with this important difference, however, that whereas in the animal the instinct is aroused by the imminence of death only, in man, by reason of his intelligence, it is rife as a possibility of the present and a certainty of the future. This fact is by no means trivial; on the contrary, a due appreciation of its significance bears directly on the correct interpretation of that process which in the human subject underlies the development of the fixed, delirious dread we are now considering.

It is to be noted that the dread of death is usually absent during the actual process of dying. The submerging of the dominating concept, its disassociation from the field of consciousness by pain, as well as the eventual diminution of the acuity of consciousness itself, serve in most instances to account for the apparent paradox. The dread, then, is not evoked by the process of dissolution. In my opinion, it has and must always have as an indispensable condition to its true obsessional manifestation, a neuropathic foundation, either inherited or acquired.

The following case, taken from my own notebook, exhibits the essential psychology:

Patient.—Mr. H., a neurotic individual, already past middle life, consulted me some time ago in regard to an obstinate type of insomnia that had debilitated and racked him for a long time.

Family History.—His father, long since dead, was a native of South Germany, and had been of a highly eccentric and melancholy cast of mind. His mother, a native of Alsace, likewise deceased, had been a victim of night terrors and morbid religiosity. Of his remoter ancestry nothing significant was known.

Personal History.—I could gather nothing very characteristic of his childhood and early education save that, at school, his memory and appetite for mathematics gained him commendation. From the obvious blight resting on his immediate progenitors the patient had not escaped. He was somber, shrinking, unstable in his moods and purposes, and subject to sudden and uncontrollable outbursts of anger on insignificant provocation. He showed at least three of the physical stigmata of degeneration—asymmetry of the head and face; small ears, undeveloped and ill-set; and a well marked *taurus palatinus*. At puberty, however, or shortly afterward, his thoughts and dreams were tainted with lasciviousness, while at the same time he underwent an extraordinary experience of religiosity. Later, when set to work in a commercial house, he began to dabble in the writings of speculative philosophers. These and other unfathomable crotchets, colliding with the theological concepts of an earlier day, made havoc of his peace of mind, transforming consciousness, as it were, into a kind of Donnybrook. A victim of this welter of antagonisms, pirouetting precariously between his theology and his philosophy, he became in opinion as vagrant as a shuttlecock. He began to be afflicted by the dolor of uncertainty and by the mental pain consequent not so much on the character of his conflicting ideas as on the conflict itself. Later, when this uncertainty as to his earlier beliefs had deepened into conviction of their falsity, he suffered acutely from the pain of disillusion. The belief in the possibility of a future existence, of the preservation of his ego through all eternity having vanished, he could detect no "meaning" in his present life. Yet despite the apparent tragedy involved in the conviction he clung to life with a tenacity born of this sense of its evanescence and of its futility.

Symptoms.—With the stir of his enhanced desire to live, he began to have a fear of death increasing in poignancy with the vanishing hours and days. During the day he thought of it, spoke of it; at night he conned the trist outgivings of the sages, mournful cajolery of death, assembled by his dark infatuation into a kind of mortuary library. So wakefulness left him at the coming in of day, a sad, disheveled figure, limp, wan and impotent. He was thoroughly obsessed by this; his whole mentality circled, as it were, about that black, imperious concept of death. Persecuted day and night by his implacable besetment, his terror took on a new aspect; he began to fear his fear or death, to regard with the poignancy of an unutterable consternation, not the idea so much as its relentless pursuit of him. He began, at length, to long for rest and oblivion. Then he declares he heard a voice at night, during the flickering consciousness of half slumber, saying: "Make away with it—of yourself! Put a term to the eternal thrall of consciousness! Away! Away! Death to escape death!"

Treatment.—He was put on large doses of sedatives, which quieted him considerably during the day; at night hypnotics of the more potent sort procured him betterment both in the amount and quality of his sleep. In time his appetite improved and in due course his general bodily condition. This renewal of energy, coupled with the prolonged exemption from his obsession produced by forced sleep, caused an abatement of his suicidal thought. From the morbid dread of death, obtruding itself during the waking interval, nothing, however, has availed to relieve him.

In another case, that of a degenerate, religious man of 35, the evolution of the fear of death was different, having been inspired not by lack of, but rather by belief in a life after death, with the accompanying corollary of condign retribution beyond the grave.

Coming on in the train of a severe illness (typhoid fever), this dread, growing steadily in intensity, attained to the dimensions of a monomaniacal besetment, against whose fixity arguments were of no avail.

Here the use of stimulants, notably opium, with forced sleep and change of scene and occupation, achieved a considerable mitigation. But neither absolute freedom from the delirious idea nor exemption from sudden and unaccountable exacerbations in its dominant intensity was ever attained.

Such cases as these, especially at their anxious climax, have often been taken for melancholia. This is a great error. In melancholia the emotional disturbance—the depression—is the primary factor; in monomania the intellectual element—the delirious

idea—comes first, the unrest and anxiety being largely if not entirely secondary. Moreover, the peculiar etiologic feature of monomania, degeneration, with its characteristic mental discords, marks the fundamental cleavage between the two disorders.

While these cases are undoubted instances of monomaniacal obsession, the morbid fear of death does not always go to such extremes. There are, in fact, individuals, religious or philosophical, or neither one nor the other, who disclose this dread in such full measure, harping on it in conversation, or dwelling on it in their meditations, that it is apparent that in them the sentiment has become, as it were, a veritable "hypertrophy," monopolizing consciousness, casting precursory shadows on the mind, and despoiling life of its heritage of happiness. Such persons, while usually free of the brand marks of degeneracy, frequently disclose a neurotic, hypersensitive temperament. They are acutely aware of the dissonances of existence, and alive to its pains and disappointments, and they can not endure to behold in others sufferings which are so poignantly appreciated by themselves. To these persons pain is the positive, pleasure the negative element of life. As has been said, neither religion nor philosophy avail to quiet in such persons the heightened sense of the inevitable tragedy. Having had repeated and convincing proof of this, I have sought, by the help of a kind of discipline of death (I can think of no other name for it), to infuse into the mind of an individual so affected a personal, an experiential appreciation, as it were, of the essential benevolence of death.

I have insisted, in the first place, that inasmuch as the loss of the sense of personality, of the ego, confers the chief terror on the thought of death, he may appreciably diminish that terror by thinking of sleep as death—not of death as sleep. By causing him to habituate himself to this idea by saying to himself when about to sleep, "I die now," I have sought, through the help of autosuggestion, to make him feel that he already knew the worst that death could inflict on him; that, in short, he had died, to all intents and purposes, every twenty-four hours. Further, I have endeavored to engender the conviction, by actual trial on himself, that unconsciousness is the greatest of all boons.

To achieve this, I have seen to it that during the day he was kept employed, mentally and physically, to the full limit of his capacity. At night, however, when overcome with weariness he betook himself to bed, an attendant awoke him whenever he fell asleep. In the morning, when very irritable and exhausted he demanded coffee, he was compelled to content himself with bread and a meager store of milk. Thereafter, he was still further tormented by drowsiness, but, despite his entreaties, he was not allowed to sleep all day. During the second night, however, about 11 o'clock, having declared that he "would rather sleep, even if he never woke up," than keep on with the experiment, he was allowed to become unconscious. One such experience as this does more to impress the mind with the benevolence of unconsciousness, whether of limited duration or not, than much fine-spun philosophy. By virtue of its experiential potency the reason concedes that, while sleep suffices to make good the curable shortcomings of the mental mechanism, death only is able to antidote its immedicable dilapidation.

A galling experience, then, of the pangs of a consciousness unduly prolonged is the most convincing testimony to the supreme benevolence of death.

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RHEUMATISM AND OTHER AFFECTIONS OF THE JOINTS.

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To the question, "Have you ever had rheumatism?" the great majority of my adult dispensary patients have answered in the affirmative, but when questioned further as to the location and character of the trouble there were nearly as many answers as there were patients. In some cases the trouble was in the large joints, which were affected singly or multiply; in other cases it was limited to the small joints; again, it was in the muscles, in the nerves, in the bones, in the head, in the throat, in the stomach, in the uterus, or in the heart, for there is scarcely a part of the body which seems free from this omnipresent malady. Some of the attacks were acute, but more often they were chronic or recurrent. At times they were so severe as to confine the patients to bed, but more often they merely inconvenienced them at their work. Indeed, there seems to be only one symptom common to all cases, and that symptom is pain.

Is this pain in all cases rheumatic, as the patients suppose, or are there not a number of diseases which cause pain, and which, therefore, are considered to be rheumatic? Some of these troubles are at first glance seen to be due to other causes, such as syphilis, but how about the remainder, which are harder to separate? Shall we take the patient's diagnosis, or shall we investigate further? The only way to get at the real nature of the complaint is to find out the cause of the trouble, but this is especially difficult in these cases, and, in consequence, physicians have been forced to accept the patient's diagnosis, though they have been dissatisfied with it and with the consequent treatment.

This is no new trouble, for Haygarth said in 1805: "The term rheumatism has been applied without sufficient discrimination to a great variety of disorders, which, except pain, have few symptoms that connect them together." Indeed, it has only been in the last few years that any real advance has been made in this line.

Having grouped all these troubles together, we have naturally tried to find one causative agent for them all. The patient is pretty sure to attribute his rheumatism to taking cold, and in some respects he is right, for sudden changes in temperature and exposure to cold and wet certainly aggravate many of these affections, and must often be considered as predisposing factors, though it is doubtful if cold is ever the sole or even the chief cause of any one of these diseases. We do not know how it acts, but we have good reason to believe that no small part of the effect of cold is due to the decrease of the skin's action and the consequent increase of irritating substances in the body fluids.

When it was found that our old scapegoat "cold" could not bear all the responsibility for the so-called rheumatic diseases, a large part of the medical profession eagerly accepted Haig's plausible theories. These are based on the supposition that this class of disease, as well as many others, is dependent on faulty "proteid metabolism," which results in the formation of an excess of uric acid, the so-called lithemic condition. Haig, however, does not bring forward the experimental proof necessary to verify his statements, and other experimenters have absolutely failed to get his results, which was to be expected, when one considers the number of diseases the uric-acid theory is made to cover.

In a negative way Haig's work has been of the great-

est value, as it has stimulated work in pathologic chemistry, more especially in regard to the group of diseases at present under discussion. The great fault with his work is that, instead of seeking for the true causes of disease, he has formulated a theory, and has tried to group many utterly diverse troubles in accordance with it, without first having obtained the necessary experimental proof. He is a very plausible writer, however, and as a result many patients have been unnecessarily starved, often to their great detriment, though others have doubtless been much benefited, as our people are unquestionably given to eating too heavily. Haig's star, however, is far past the meridian, as is shown by the following quotation from THE JOURNAL A. M. A.: "Haig, using methods which are known to be unreliable, secured data which can not be corroborated, and with these as a basis, followed out a marvelous train of logic to the ultimate conclusion that practically all disease is due to uric acid, and that a vegetable diet is a guarantee against the sufferings of mortal man."

Let us give up the idea of finding one cause for all these troubles and try to separate them, so that we can look at each disease by itself. This, however, will be no easy task, as our knowledge of the subject is still very incomplete. Nevertheless I am going to try to separate some of the diseases commonly grouped together under the term rheumatism, but it must be borne in mind that this is merely a tentative classification, which will of necessity be greatly modified as our knowledge of the subject increases.

DISEASES OFTEN TREATED AS RHEUMATISM.

A. Diseases involving the joints.
   1. Acute articular rheumatism.
   2. Arthritis deformans.
   3. Gout.
   4. Specific or secondary arthritis.
      (*a*) Tubercular.
      (*b*) Gonorrheal.
      (*c*) Septic.
      (*d*) Following acute infectious diseases.
   5. Traumatic arthritis.

B. Diseases which do not involve the joints.
   1. Neuritis (neuralgia, myalgia).
   2. Periostitis, osteomyelitis, rachitis.
   3. Bursitis, tendo-synovitis, etc.
   4. Deformities (e. g., flatfoot).
   5. Referred pains.

ACUTE ARTICULAR RHEUMATISM.

This is the true rheumatism, and is now generally looked on as an acute infectious disease, which is supposed to be the result of an infection by a specific microorganism. It is a general infection, affecting not only the larger joints, but other serous membranes, more especially the endocardium. It is accompanied by high fever and is characterized by severe pain and tenderness, and its tendency to jump from joint to joint. Like other acute infectious diseases, it has a tendency to spontaneous recovery, and apparently does not run into chronic rheumatism, the joints seeming to recover completely, though it often leaves behind it a weakened heart valve. This disease is not followed by immunity, but, on the contrary, seems to predispose to a second attack. The prognosis as to life is usually good. Uric acid certainly has nothing to do with this disease. There may be trouble in differentiating it from polyarticular gout, from acute arthritis deformans or from gonorrheal or tubercular arthritis, but it will be better to discuss this when the other diseases are treated.

ARTHRITIS DEFORMANS.

This term has only recently come into general use in this country, though it is common enough abroad. Thus more than ten years ago Strümpell said: "The two diseases known as chronic articular rheumatism and arthritis deformans are considered together here, because it is impossible to draw a sharp distinction between them." At present the best authorities seem to think it wise to abandon the term chronic articular rheumatism, as this implies a chronic form of the acute disease, which, as we have just seen, does not become chronic. Arthritis deformans is probably of infectious origin, though it often appears to be connected with nervous disturbances and conditions which depress the general health. Some authors claim that it is of nervous origin, and that this, in turn, is dependent on a toxemia. There also seems to be an hereditary lack of resistance to this disease.

The pathologic findings speak for an inflammatory condition at the outset, with a secondary degeneration. There always seems to be changes in the cartilage of the joints, and later the bone may be involved, with considerable thickening and deformity, while it often produces hyperostoses, such as Heberton's nodes on the fingers. Atrophy of the muscles around the joints may be a striking feature.

The most marked features of this disease are a polyarthritis, which does not shift about, slight fever, and a rapid pulse. It is especially common in the small joints of the hands and feet, though it may affect any joint, and usually affects the same joints on both sides. When the vertebræ are involved there is a marked rigidity of the spine with pain, which is frequently called lumbago or sciatica. It occurs most often in women and in people past middle life, though it may occur in childhood. There is an acute form, which affects many joints simultaneously and which is apt to be taken for sub-acute rheumatism, but the chronic form is far more common. There is rarely, if ever, endocardial involvement. Yeo says that it differs from polyarticular gout in the absence of uratic deposits, and from rheumatism by the presence of structural lesions. The *x*-ray is of great value in diagnosing old cases.

GOUT.

Articular Gout.—An attack of acute articular gout usually begins with an agonizing pain in the big toe, which is red, swollen and very tender. The symptoms generally subside during the day, to return again the next night. These attacks, as a rule, are preceded by indigestion, and are prone to occur at irregular intervals, sometimes involving other joints, until the joints may be permanently crippled by deposits of urates. In the chronic forms the feet are most often involved, and then the hands, but there may be concretions about the elbows, the knees and along the tendons, as well as tophi in the ears. These patients usually have chronic acid dyspepsia, and later develop arteriosclerosis. In such cases intercurrent attacks of acute polyarthritis may occur with a temperature from 101 to 102, though the patient may never have more than subacute attacks.

Nonarticular Gout.—A similar blood condition may also apparently produce arteriosclerotic and renal changes, as well as headaches, neuralgia and eczema, without involving the joints.

There is a marked hereditary tendency in gout, which is prone to appear in an adult man, "who has not lived wisely, but too well," more especially in beer drinkers, while it is often associated with lead intoxications.

This is the disease to which the uric-acid theory applies, if it applies to any, but it is strongly disputed here, though the controversy has not yet been settled. There is an increase of uric acid in the blood in acute attacks and a deposit of urate of sodium in the affected joints, still, according to Bouchard, "it has by no means been demonstrated that uric acid is the only or even the chief matter contaminating the fluids. The disease itself is not due to uricemia," for we have uricemia in other diseases (e. g., in leucemia) without gouty manifestations. Yeo believes gout to be a disorder of elimination, especially of hepatic elimination, which causes an increase of toxic substances in the body, these last being responsible for the symptoms.

We seldom have difficulty in diagnosing a typical attack of acute gout, but the more chronic polyarticular form is often hard to distinguish from arthritis deformans. Here we have to consider the history of the case, more especially of previous attacks and of the patient's habits, while the presence of tophi is diagnostic. Acute gout also responds quickly to colchicum, which does not help any of the other troubles.

SPECIFIC OR SECONDARY ARTHRITIS.

There are a number of joint infections which are due to specific agents and which are rightly classed with other diseases, but which are often mistaken for rheumatism, and which will have to be mentioned here for the sake of diagnosis.

(*a*) *Tubercular Arthritis.*—The acute tubercular joint may well give rise to trouble in diagnosing it from acute articular rheumatism. McCrae thinks it best to regard all monarticular forms as tubercular or gonorrheal till other symptoms prove them to be rheumatic. The chronic form is a purely surgical trouble, and has long been recognized as something entirely distinct from rheumatism. Nevertheless it is still sometimes treated medicinally, this being especially true of hip-joint disease, which I have seen diagnosed and treated as "chronic rheumatism of the knee" to the permanent injury of the patient. It is well here to remember Dr. M. Phelps' rule, "Never treat rheumatism of the knee in a child without first examining the hip."

(*b*) *Gonorrheal Arthritis.*—We may have an arthritis immediately following a gonorrheal infection elsewhere, and gonococci have been found in such joints. In the acute form it usually involves only one joint, usually the knee. In the more chronic variety several joints are often affected, and here it may be mistaken for arthritis deformans, but an examination of the genitals with careful questioning is generally sufficient to make the diagnosis. The acute form must be differentiated from acute articular rheumatism, but the pain is not as a rule so severe, the fever not so high, and it does not tend to leave one joint and to appear in another. A gonorrheal septicemia with involvement of the heart and several joints is very difficult to distinguish from acute rheumatism.

(*c*) *Septic Arthritis.*—This may occur in the course of pyemias, most often in puerperal fever. The inflammation is accompanied by pus formation, and the diagnosis is usually easily made. The monarticular acute arthritis of infants, which goes on to pus formation, seems to belong to this class. Under this head it is better to mention joints involved in the infection of osteomyelitis, though this will be referred to later.

(*d*) *Accompanying Acute Infectious Diseases.*—In scarlet fever, smallpox, dysentery, pneumonia, cerebrospinal meningitis and dengue there may be joint involvement, which is hard to distinguish from acute articular rheumatism. These may go on to pus formation, and are now generally attributed to the causative factors of the accompanying disease.

TRAUMATIC ARTHRITIS.

A swollen joint which is the direct result of injury is seldom attributed to rheumatism, but it is well to always bear this possible cause in mind.

NEURITIS.

Myalgia (muscular rheumatism), neuralgia, and certain forms of neuritis (such as the so-called sciatic rheumatism) are at present so hopelessly confused that it is very hard to unravel the tangle. They are all, however, often classed and treated as rheumatism, though none of them are joint affections. It will be well first to consider the meaning of the terms. Myalgia means "muscle pain"; neuralgia, "nerve pain," both being mere symptoms, while neuritis is the only real disease of the three. The "muscle pain" may be from injury to the muscle itself, as in severe strain, but it is apparently more often of nervous origin or a neuralgia. The "nerve pain" may be from a more or less marked neuritis or may be referred from some distant organ. Now a neuritis may occur from injury or from pressure, as in some cases of sciatica, besides which any irritating substance in the body fluids may affect the nerves and cause more or less inflammation, as is shown in neuritis from alcohol, lead and arsenic, or from the toxins of syphilis, diphtheria and other infectious diseases, or from the auto-intoxications of diabetes, nephritis, intestinal disturbances, and those faulty eliminations, which produce a gouty condition. These substances may produce a transient irritation, which may be termed neuralgia or myalgia, or a more permanent inflammation, which may be called neuritis, but the difference between the two seems to be only one of degree. When a nerve once has been affected it is left in a more sensitive condition, and small things, such as changes in temperature, are enough to produce a fresh attack. A faulty blood supply, either a general or a local anemia, is a predisposing cause of neuritis, while a lack of nerve control will heighten the neuralgic attack.

PERIOSTITIS, OSTEOMYELITIS, RACHITIS.

Various diseases of the bones are at times mistaken for rheumatism, though this is especially the case when the joints are involved secondarily. Thus, acute osteomyelitis may be mistaken for acute articular rheumatism, while the chronic tubercular form may be treated for chronic rheumatism. Periostitis, even of syphilitic origin, is often considered to be rheumatic by the patient, and I have known it to be treated as such. The tender and enlarged epiphyses of rachitis also in a few cases have been ascribed to rheumatism. It is needless to add that none of these troubles are rheumatic, and that rheumatic treatment is worse than useless.

BURSITIS AND TENDOSYNOVITIS.

Inflammation of the tendon sheaths near the joints, or even more superficial inflammations, more especially bursitis, may be mistaken for rheumatism, though, naturally, they have nothing in common with this disease.

DEFORMITIES.

Certain deformities, especially "flatfoot," must be mentioned, as I have heard of a number of such cases being attributed to uric acid and dieted.

REFERRED OR REFLEX PAINS.

These pains are all neuralgic (i. e., nerve pains), and

are referred to parts at some distance from the seat of the trouble. They may be due to disease of the spinal cord, as in locomotor ataxia, and in acute poliomyelitis, or they may be referred from the viscera. Thus, there may be pain in the right shoulder and back from the liver; pain in the left shoulder from the heart, the colon or the diaphragm; pain around the hip from the ovaries, the kidneys or the ureters. While it should never be forgotten that pain near the knee may be referred from the hip. All these have been treated as rheumatism, and naturally such treatment has been of little avail.

"CHRONIC RHEUMATISM."

I know it is customary to give chronic rheumatism as a distinct disease, but it is getting to be generally felt that there should be no such head. A large number of the cases usually called chronic articular rheumatism are more or less marked cases of arthritis deformans, while the rest are usually found to be due to gout or to some specific variety such as gonorrheal arthritis. Acute articular rheumatism, the real rheumatism as we have seen, does not become chronic, and consequently a chronic joint affection should not be called rheumatism, as this leads to needless confusion. The so-called chronic muscular rheumatism is not the result of real rheumatism, but, as we have seen, in all probability is an affection of the sensory nerves of the muscles, though it is sometimes superinduced by a gouty toxemia.

TREATMENT.

Acute Articular Rheumatism.—This is an acute febrile disease, and requires rest in bed and a skimmed milk diet, with local applications of heat or cold to the affected joints. The salicylates are indicated here in large doses, though Osler says they are no longer to be considered as specific in this disease. It may be necessary to give morphin or the coaltar products to quiet the pain.

Arthritis Deformans.—Here an entirely different line of treatment must be followed. Rest in bed is seldom necessary, though the joints should not be over-exercised during the more acute stage of the disease. The diet should be as liberal as can be digested, and a strict anti-uric-acid diet does great harm. Tonic treatment should be instituted, the syrup of the iodid of iron being especially useful. Dry hot air and galvanism should be used on the affected joints and later on massage and passive movements. If ankylosis has occurred, good results can not be expected, but in earlier cases the treatment just laid down will give good chances of success if it is persisted in.

Gout.—The acute attacks call for rest in bed, free movements of the bowels, a milk diet, large quantities of water, colchicum and possibly morphin, when the pain can not be endured. Hot lead and opium wash locally is often very soothing. The salicylates are generally said to be contraindicated. In the more chronic form or between the attacks insist on a light general diet, regulated to suit the digestion of the patient, iodid of potash and plenty of water. Also see that the skin, kidneys and bowels are doing their work, and that the patient is taking regular moderate exercise.

Tubercular, Gonorrheal and Septic Arthritis.—These cases all call for absolute rest, even immobilization of the joint and an alleviation of the pain. The causative trouble (the gonorrhea or the local infection), must be treated. Surgical interference nevertheless is often required, and the advice of a competent surgeon should be sought early. There are no specific remedies for these troubles, and the most to be expected from drugs is the alleviation of pain, but local applications of heat or cold are commonly more useful than any drug.

Non-articular Affections.—Though we are really only considering joint affections, I think it wise to add a word or two on the treatment of those forms of neuritis which we commonly term muscular rheumatism. The acute form calls for rest and relaxation of the affected nerves and muscles, together with an alleviation of pain. This is obtained by rest in bed, with heat, gentle massage, galvanism or acupuncture, if there is spasmodic contracture of the muscles, while the pain may be controlled by the salicylates or by the coaltar products. In the more chronic or recurrent cases the cause of the trouble must be searched for. If it is due to a toxemia of any kind the cause of the toxemia must be removed and the irritating substances must be eliminated by promoting a freer action of the skin, bowels and kidneys. If it is due to an anemia, that must be remedied, and as one attack makes the nerves more sensitive, such a patient should be made to wear warm clothing. Do not diet the patient unless the trouble seems to be due to an intestinal or gouty toxemia.

CONCLUSION.

Finally, do not put every patient who has pain in or around the joints on the salicylates, or on "a lithemic diet," but look for the true cause of the trouble, for there are different affections of the joints as well as different affections of the digestion. The results of this treatment have been notoriously poor, as was to be expected when we consider what a small percentage of the cases it really suited. Let us, therefore, sift out our cases and try to treat them rationally, and so remove one of the so-called reproaches of modern medicine.

Special Article

IMMUNITY.

CHAPTER XIV—CONCLUDED.

Bacterial Receptors.

All bacteria which stimulate to the formation of bactericidal serums do so because of certain receptors which they possess. These are, of course, analogous to the receptors of erythrocytes which cause the production of the hemolytic bodies in serum. They have, in addition, many other receptors, some of which cause the development of agglutinins. In the latter instance we speak of the agglutinogenic receptors of the cells, but there is no name of equal convenience which is used to designate the receptors which stimulate to the formation of amboceptors. No two micro-organisms contain an identical receptor apparatus; if the contrary were the case their antiserums would coincide in their bactericidal action. Therefore, the sessile amboceptors with which they unite during immunization differ correspondingly in their cytophilous haptophores. The cytophilous haptophore of the typhoid amboceptor finds its specific counterpart in the typhoid bacillus, and finding no such counterpart in the vibrio of cholera, the latter can not be sensitized by the antityphoid serum; on this fact depends the specificity of the serum. This conception does not interfere with the explanation of the group reaction among bactericidal serums on a similar basis, for it is conceivable that the colon bacillus, for example, has, in addition to those receptors which characterize the organism, a small percentage of receptors which are identical with those characterizing the typhoid bacillus. In accordance with this possibility an antityphoid serum may well, as it does, show some increased bactericidal power for closely related organisms. Hence the explanation of group bacteriolysis is identical with that of group agglutination.

There is a wide difference of opinion regarding the unity of

complement, or alexin, its synonym. Bordet and his followers stand for the unity of the alexins, and their position rests on the fact that a given normal serum may be used to activate many different amboceptors. We should appreciate that this phenomenon might depend on the broad range of action of a single complement, or on the presence of different complements each being specific for a particular amboceptor. Ehrlich and his school take the latter view and have actually demonstrated a multiplicity of complements in a few instances. Ehrlich and Sachs treated fresh normal serums (complement) in various ways, such as digestion with papain, partial destruction with alkalies, heat, etc., and were able by these methods to destroy the complement for one kind of amboceptor, while the serum still retained its power for activating other amboceptors. Accordingly, it seems clear that the ability of a normal serum to activate a given amboceptor depends not only on the presence of complement in a general sense, but on the presence of a suitable complement, i. e., one the haptophore of which corresponds to the complementophilous haptophore of the amboceptor. This point is of great importance in reference to the treatment of infectious diseases with antibacterial serums, for the efficacy of the serum would seem to depend on the introduction of suitable complement in conjunction with the amboceptors, or on the existence of such complement in the body of the patient.

Multiplicity of Complements.

Added proof of the multiplicity of complements has been obtained by experiments with anticomplements. As stated, the latter are obtained by immunization of suitable animals with normal or immune serums which contain complement or complementoid; when they are mixed with the homologous complements the haptophores of the latter are bound by means of the haptophores of the anticomplements. The evidence of this union lies in the fact that a complement which has been treated with its specific anticomplement is no longer able to activate the appropriate amboceptor. With properly selected serums, it may be shown that a given anticomplement will neutralize a complement which is specific for one amboceptor, but will have no effect on another complement which activates a different amboceptor. Hence, complements differ at least in this respect that not all have identical haptophores. Immunization with leucocytes, cells which contain complement, also causes the formation of anticomplement. Both natural and acquired antibacterial immunity may be lowered by the injection of anticomplement which is homologous to the complement of the animal.

Anticomplements.

If one immunizes with an immune serum the product is spoken of in a general way as an anti-immune serum. The latter contains, as stated, anticomplement; through the agency of this substance the antiserum antagonizes the action of the serum which was used for the immunization. Inasmuch, however, as the immune serum contains amboceptors also the antagonistic action of the antiserum may depend in part on the presence of antiamboceptors. Differentiation between the action of anticomplement and antiamboceptor is difficult, but it may be accomplished in certain cases by appropriate binding experiments. Serum 1, an inactive hemolytic serum, i. e., a solution of amboceptors and complementoid, is treated with serum 2. Serum 2 has been obtained by immunization of an animal with serum 1, and contains anticomplement and possibly antiamboceptors. If serum 2 contains only anticomplement, it will have no effect on the amboceptors of serum 1, when the two are mixed. The amboceptors are free to sensitize corpuscles which may be added, and when sensitized they undergo hemolysis in the presence of complement. If, however, serum 2 contains antiamboceptors, either the cytophilous or the complementophilous haptophore of the amboceptor will be bound. In either case corpuscles which are added subsequently would not appear as sensitized, for if the cytophilous haptophore had been bound by antiamboceptor union between cell receptor and amboceptor could not occur; and if the complementophilous haptophore had been preoccupied complement would have no effect even if the amboceptors had united with the cells by their unbound cytophilous haptophores. Ehrlich and Morgenroth demonstrated such antiamboceptors for certain hemolytic serums, and it is their belief that they combine with the cytophilous rather than with the complementophilous haptophore of the amboceptor. Pfeiffer also reports the demonstration of antiamboceptors for the specific amboceptors of anticholera serum. The possibility of antiamboceptor formation is one of practical bearing, in view of the fact that the prolonged treatment of a patient with a bactericidal serum may result in the development of such antibodies; if present in sufficient amount they would combine with new amboceptors which were injected and thus deviate the latter from the bacteria.

Antiamboceptors.

Danger of Formation of Antiamboceptors.

A phenomenon equally of theoretical and practical importance has to do with the so-called deviation (*Ablenkung*) of complement. It has been found that the action of a bactericidal or hemolytic serum is lessened, if a great excess of amboceptors over complement is added. To explain this fact Neisser and Wechsberg have supposed that when so many amboceptors are present that all can not be taken up by the cells, those which remain free are able to combine with some of the complement which is present and thus prevent the accession of the latter to the sensitized cells; that is to say, the complement is deviated from its natural course of action. This amounts to a protection of the sensitized cells from the action of the complement. The phenomenon led Wechsberg to suggest that in the therapeutic administration of bactericidal serums it may be possible to give too much of the serum. Although deviation of complement is a demonstrated fact, its importance in serum therapy is perhaps not definitely settled.

Deviation of Complement and Its Theoretical Danger.

It is of interest that amboceptors are widely distributed in the animal kingdom, and that in certain instances they may be demonstrated in the secretions. It has long been known that the venoms of serpents owe a great deal of their toxicity to their power of destroying red blood cells. A given venom may contain several toxic properties, and the poisons of different serpents by no means coincide in their various properties. Cobra venom has at least two distinct toxins, one for the nervous tissue and one which dissolves erythrocytes, the neurotoxin having the greater pathogenic significance; it, moreover, agglutinates red blood corpuscles. The venom of the rattlesnake, on the other hand, is neurotoxic to a less degree, but has a pronounced influence in causing capillary hemorrhages. The latter power Flexner ascribes to a toxin for endothelial cells, which he calls hemorrhagin. Through the works both of Kyes and of Flexner and Noguchi, facts were learned concerning the hemolytic toxin of cobra venom, which may be of great importance in problems of general immunity. It seems that the hemolysin of venom is an amboceptor rather than a toxin of the usual nature, and that the aid of complement is necessary for its toxic action. Strange as it may seem, the venom itself contains only the amboceptors, so that the toxicity of the substance depends on its being complemented after it is introduced into the body. The possession of suitable complement, therefore, is a source of danger in this instance rather than a means of protection for the individual. One may very well suspect that a similar relationship is possible in connection with other substances which are as yet unknown.

Hemolytic Amboceptors of Venom.

A fact of additional importance is that the amboceptor finds suitable complement not only in the serum of the animal, but it may also be activated by a complement which the erythrocytes themselves contain. Kyes speaks of the latter as endocomplement, i. e., endocellular complement.

Endocomplement.

In attempting to discover the nature of the complement which is present in the erythrocytes, various substances existing normally in the red cells, as cholesterin and lecithin, were obtained in pure form and their activating power for the cobra amboceptors was tested in reagent-glass experiments. From this work it was learned that lecithin, a definitely known chemical substance, has the activating power, and it was, therefore, assumed that the endocomplement of erythrocytes is nothing

Lecithin.

more or less than lecithin. All erythrocytes contain lecithin, yet not all are equally susceptible to the action of venom in the absence of serum complement; that is to say, endocellular lecithin does not act as complement with equal readiness in all cases. In order to explain this variation it was necessary to assume that the lecithin in the cells of one animal may be more available as complement because it is bound to other cell constituents only in a very loose way, whereas in more resistant cells the union is of a firmer nature.

Cobra-lecithid.

The relationship between cobra amboceptors and lecithin seems to be a very definite one, for Kyes was able to obtain a union of the two without the intervention of erythrocytes. The resulting substance, the cobra-lecithid of Kyes, is a completed toxin and needs no further activation. We have yet to learn of the true nature of this new compound, the discovery of which seemed at first to augur a more intimate chemical knowledge of the substances which are concerned in immunity.

Hemolysis by the Combined Action of Colloids.

Lecithin is a colloid, and in this connection it is most interesting to note that it may be used in combination with still another colloid in such manner that the hemolysis which they cause is analogous to that produced by the action of hemolytic amboceptor and complement. Landsteiner tried the effect of colloidal silicic acid on erythrocytes which were entirely freed from serum, with the result that the corpuscles were agglutinated under its influence. It developed further, however, that colloidal silicic acid not only acts as an agglutinin, but also simulates a hemolytic amboceptor, and in the latter capacity it may be activated either by the ordinary complement of serum or by lecithin. Hence, we have here an instance of the entire cytolytic action being performed by two known chemicals, which in their action appear to be analogous to amboceptors and complements. Yet even the action of these substances is obscure, for although the chemical formulæ of silicic acid and lecithin are sufficiently well known, the explanation of their activity as colloids is equally obscure with that of the albuminous substances.

Neutralization of Complement by Salts.

Another recent discovery which tends to bring the immune substances into closer touch with pure chemistry is that of Hektoen concerning the ability of certain salts (calcium chlorid, barium chlorid, etc.), to combine with complement in such a way that the latter loses its activating and combining function in relation to amboceptors. This was mentioned incidentally under the subject of antitoxins. The activity of the complement is again restored if the inhibiting salts are precipitated by suitable chemicals. The salts are used in such dilutions that they are largely ionized, and Manwaring believes their inhibiting action is due to the formation of compounds of the positive ions with the complement, resulting in such substances as Ca-complement, Ba-complement, etc. When the precipitating chemicals are added the ions are freed from this combination, as a result of which the complement recovers its activating properties. It has not as yet been determined whether variations in the salts in the fluids of the body cause changes in resistance by their action on native complements.

(To be continued.)

Clinical Reports

A CASE OF EXOPHTHALMIC GOITER,

WITH ACUTE SYMPTOMS AND DEATH PROBABLY CAUSED BY THE USE OF THYROID EXTRACT.

M. V. BALL, M.D.

WARREN, PA.

Patient.—M. A., female, aged 24, no occupation; tall, blonde, slender. Family history is unknown, as she was taken from an orphanage when young.

History.—She has never had any serious illness and has always been very vivacious in temperament. She has had a small goiter for three or four years and a rapid heart, with some throbbing at the neck. She has been taking 5-grain tablets of thyroid extract for over a year to reduce the thyroid swelling. She has not been obliged to consult a physician in the past two years. Her friends noted a tremor about the hands last summer. Her eyes were not prominent, but sometimes there was a noticeable stare, and she was in the habit of rolling them so as to make the sclera appear prominent.

Present Illness.—On Oct. 11, 1904, while on a visit to a neighboring city, she was affected with vomiting, diarrhea and headache and was indisposed for a week. Ever since that time she has had a poor appetite, but complained very little until about December 1, when she seemed excitable and confused, complained of severe headache and was unable to retain food. She was very restless and emotional, was thought to be hysterical. She improved, however, and toward the middle of the week was up and around, though her stomach was still irritable and she was unable to sleep. A physician was called, but no mention was made of the existence of palpitation and tremor previous to the present indisposition, and her symptoms were attributed to hysteria. She had no fever, a slight purpuric eruption was noticed about the knees and arms, and it was attributed to the friction of the bedclothes, as she was extremely restless while in bed. There was no pain. As she did not improve, her physicians had her sent to the hospital because of the extreme restlessness that no drugs seemed to relieve, and the very rapid action of the heart and a gradual increase of the bodily exhaustion.

Condition in Hospital.—On admission to the hospital, December 14, 9 p. m., the temperature was 99 in the axilla, pulse 142, respiration 34; December 15, 10 p. m., temperature 99, pulse 150, respiration 32; December 16, 6 a. m., temperature 98.2, pulse 140; 6 p. m., temperature 99, pulse 154, respiration 26. She slept a few hours and was slightly delirious when awake. She was quieter under aconite and sedatives.

December 17, 6 a. m., asleep, pulse 150, respiration 24. She slept a number of hours. 10 a. m., temperature 96.2, pulse 132, respiration 24. She retained nourishment well and slept several hours, but the conjunctiva became very highly inflamed and a muco-purulent discharge appeared. Mind is clear. Urine examined showed specific gravity 1018, acid reaction; no albumin or sugar. At 6 p. m. the temperature in the axilla was 98, pulse 134, respiration 24.

December 18, 2 a. m., temperature in axilla 98.2, pulse 140, respiration 26, eyes very painful; 8 a. m., temperature in axilla 98.1, pulse 136, respiration 28; 2 p. m., temperature in axilla 97.2, pulse 140, respiration 32.

She had several thin, watery and involuntary bowel movements during the afternoon. 6 p. m., temperature in axilla 98.4, pulse 130, respiration 32; 10 p. m., temperature in axilla 98, pulse 140, respiration 26. The conjunctiva now became intensely congested and there was a profuse muco-purulent discharge.

Examination.—I was called in consultation and examined the patient at 10 p. m., December 18. The corneal surface was abraded. I had difficulty in getting a good view of the eye-ground because of the restlessness of the patient, but the fundus appeared to be fairly clear. A culture of the discharge was made which next morning showed a capsulated diplococcus (pneumococcus). I noted the goiter, but found no undue prominence of the eyes. The patient was much emaciated about the face, tossed from side to side and moaned. She said her eyes pained; she had difficulty in swallowing; the tongue was glazed and very dry; the face flushed and the limbs cold and covered with purpuric blotches. Her mind was confused and somewhat drowsy. The diagnosis of exophthalmic goiter was suggested next morning to the physicians in attendance, and on inquiry among her friends the history as outlined above was obtained, thus substantiating the diagnosis. These important elements in the case, the previous history of tachycardia and goiter were unknown to her physicians or to me, and my diagnosis was based on the rapid action of the heart, the goiter, the absence of fever and absence of marked lesion of the heart or its membranes.

Termination of the Disease.—Unfortunately, this knowledge was derived too late to be of any service, for during the night the temperature began to rise and the patient became stuporous and passed away in coma at 2:30 p. m., temperature having reached 106, pulse 200 and respirations 70; the acute symptoms had lasted less than four weeks.

Autopsy.—An autopsy was held in the evening. The meninges were slightly congested, but the brain showed no gross lesion and appeared normal in every particular; the thyroid gland was uniformly enlarged, soft in consistence, normal in color. The pericardial sac was empty and the pericardium normal in appearance save for a slight roughening on the visceral portion near the base of the heart and posteriorly. The ventricular walls were hypertrophied, the valves all perfect and smooth, the heart itself not enlarged. The spleen was normal in size and texture. There was no evidence of peritoneal involvement, and the other organs were not examined. From the negative findings in the heart and brain the diagnosis of exophthalmic goiter was confirmed.

Remarks.—Such a rapid course and fatal termination is mentioned as occurring in several cases by Osler, Gowers and others. It is likely that the thyroid extract which she had taken in tablet form for over a year and which is now conceded to be contraindicated in this condition, helped to bring on the acute thyroidism. That the disease had existed for upward of two years is evident from the observations made by her friends. They remarked that they noticed the heart beating through the clothes, and the vessels in the neck throbbing, and that her hands trembled, and when they urged her to seek medical advice she replied that the condition was an old one and was not worth considering. The exophthalmus was the only classic symptom not well marked, but her appearance as her friends now recall it was at times staring and fixed.

The peculiar and severe conjunctivitis which developed shortly before her death was not due to the exophthalmus as is the case in the more pronounced types. It may have been due to traumatism, but Ramsay[1] mentions increased lachrymation, acute pain and rapid ulceration of the cornea as sometimes occurring in this malady without extreme exophthalmus, and he is inclined to attribute these symptoms to an affection of the fifth nerve through its close connection with the sympathetic, a form of neuroparalytic ophthalmia. The purpuric eruption about the joints was probably due to disturbance of the vasomotor apparatus since various skin eruptions have at times been observed in this disease. There was no edema at any time or pain about the joints. The vomiting and diarrhea which seemed to accompany the illness is mentioned by many writers. In two other cases which I have seen the patients were women and under 30, which is in accordance with Eshner's statistics, who found the disease four and one-half times more frequent in women than in men and most common in early adult life.

HAS TYPHOID FEVER INFECTION ANY INFLUENCE ON THE BACILLI OF TUBERCULOSIS?

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NEW YORK CITY.

I have heard recently of two cases of tuberculosis, as diagnosticated, which have been either cured or favorably affected as a result of typhoid infection. I submit them through THE JOURNAL to the profession for what they may be worth. I am indebted to Dr. Francis W. Gallagher of El Paso, Texas, for the notes, and I refer all investigators to him for further inquiry. I have observed that patients are, as a rule, in better health after typhoid fever than before. May it not be due to the fact that the typhoid bacillus has killed all the other more or less pathogenic organisms which occupied the body? Is there not a hint here regarding the possibility of immunity from that fearful scourge, tuberculosis?

CASE 1.—Mr. J. C. W. came from Wisconsin to El Paso in September, 1899. From this time until the middle of November, 1900, he lived in a tent under medical supervision and good hygienic surroundings. During this period he had afternoon temperatures and during the early months it reached 102 F. Physical examination Dec. 21, 1899, revealed on the right side from apex to nipple line abundant crepitant râles, dullness on same side and progressively more marked from apex to lower margin, and on the left side exaggerated and roughened respiratory murmurs with cog-wheel inspiration. There were no râles on this side. Tubercle bacilli were present. In the middle of November, 1900, he contracted typhoid fever and was removed to the Hotel Dieu and was there confined to bed until the middle of January, 1901. Convalescence was uneventful. Jan. 22, 1905, there was no cough, no expectoration, weight 145 pounds. This is as much as he ever weighed when in the best of health. He is constantly occupied as part proprietor and manager of a large newspaper plant.

CASE 2.—Mr. O. C. P. had a pulmonary hemorrhage while at college in January, 1901, and came to El Paso in May of that year. He lived in a tent from this time until September 1 following. During this time he had daily afternoon temperatures of 101 F. and over. Physical examination, May 3, 1901, showed a small cavity at the right apex; at left apex, prolonged expiration; over both lungs, vesicular murmur much diminished. Tubercle bacilli were present. He was removed to the Hotel Dieu, Aug. 31, 1901, with typhoid fever and was there confined to bed until October 12. Convalescence was uneventful. In January, 1905, he was in the City of Mexico. Dr. Gallagher writes that he had not heard from him in several months and has no doubt that he would have heard if he were not well. He has been working at railroad office work since the spring of 1902. He has increased in weight to beyond the normal average before his illness. He has no cough and no expectoration.

1. External Diseases of the Eye.

A CASE OF VOLUNTARY IRIS.

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I am indebted to my colleague, Dr. Guy H. Black, Madison, Kan., for the facts in this case. This phenomenon is very rare and seems to be generally unknown, as it is not mentioned in the text-books on ophthalmology to which I have had access. In Landois' physiology it is stated that Bechterew had observed a case of unilateral voluntary control of the iris.

The present example is one of bilateral voluntary iris which occurred in a married woman. It was first observed at the age of 9 years. Attention was drawn to the phenomenon at that time by the ability which the child then developed, of rotating the eyeballs in different directions independently of each other. From that time on it was a matter of fact established by almost daily demonstration, and observed by the various members of the family and their friends, that the iris of either eye could be dilated at will to very near the disappearing point. Vigorous exercise of the irides under the control of the will in this anomalous way was accompanied by some aching of the eyeballs. When menstruation was established, at the age of 12, the pupil of the right eye became dilated to twice the size of the left. Later the normal equal size was regained. The color of the irides is brown. No complaint of double vision has been made, and there have been no symptoms of asthenopia, although she has made a good record as a bright student and has gained an enviable reputation as a musician. The power to simulate convergent strabismus which is possessed by some individuals is possessed by this woman to a very marked degree. The patient's mother was American-born of English parents. Her father's father was a Spaniard and her father's mother was a gypsy.

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THE CURABILITY OF PARESIS.

Paretic dementia, or as it is more commonly called, paresis, is usually considered one of the opprobria of the medical profession, a disease which it is beyond the power of the physician to cure. It is true that now and then a recovery is reported, but the account is almost invariably received with skepticism and reports of such cases are hardly considered creditable to the physician making them. All the possibilities of error, faulty diagnosis, lack of continued observation, and mistaking of remission for recovery, are brought forward and one or the other ascribed as the true fact in the case.

In this issue of THE JOURNAL,[1] however, one of our distinguished neurologists, whose opportunities for observation can not well be questioned, comes forward with what is to him convincing evidence that paresis in its very earliest stages is a disorder that can be arrested or cured. His cases are perhaps less convincing than his arguments, for they are, like all other clinical histories, open to possibilities of interpretation that will not absolutely support his theory. Nevertheless, accepted according to the ordinary rules of evidence, they are not to be summarily rejected and, while the periods of their observation are not perhaps absolutely sufficient to exclude all other possibilities, it seems possible, if not indeed probable, that some of them at least would, but for the treatment received, have developed into characteristic paresis, and it is, moreover, an assumption to say that the apparent recovery is not a lasting one. Time only will determine that point. It is, moreover, in the experience of many alienists that a case diagnosed with every apparent probability of correctness has occasionally turned out something else or has made an unexpected recovery. In such cases it is usual to assume that an incorrect diagnosis has been made, but it is hard to say why it might not have been just as legitimate, in some of these cases at least, to count them as genuine recoveries from this formidable disease. If paresis is a strictly-defined, unvarying, pathologic entity and we should define it only from this particular point of view, then the diagnosis could be confirmed only by an autopsy, for it is a generally recognized fact that the clinical symptoms of the disorder may exist with various pathologic conditions and the question as to what are the first pathologic changes is by no means fully settled. The distinction between the pseudoparesis of brain syphilis and true incipient paresis is a rather arbitrary one, the clinical criteria being inconclusive. Pathologically, the distinction is clear. There should be no confusion as to the diseases, but there may be in the recognition.[1] Moreover, as Dr. Dana says, we may have the degenerative conditions of paresis existing at the same time, pathologically demonstrated, with those of cerebral syphilis. Paresis is a consequence of earlier syphilis in nearly every case, but no one can say exactly how much time must elapse between the cause and the late result. There is also, as he says, no *a priori* impossibility of the arrest of paresis in its early stages, judging by the analogy of our experience of other degenerative changes in the nervous system and elsewhere. How many cases of real recovery of paresis have been masked by the assumption of false diagnosis no one can say, but many asylum physicians of long experience have knowledge of such possibilities.

In spite of the general skeptical and critical tone of the discussion of Dr. Dana's paper, it is noticeable that few if any of those who took part ventured to assert the absolute impossibility of recoveries of the disease in its earlier stages. If Dr. Dana's views are correct, the importance is emphasized of an early diagnosis and treatment, or of at least tentative treatment, even in cases in which such symptoms as the Argyll-Robertson pupil or convulsions indicate decided degenerative changes. We are very far from having reached the last word as to the nature and the curability of paretic-dementia.

1. See page 1413.

THE ULTRAMICROSCOPE AGAIN.

Approximately two years ago the apparatus which has come to be generally known as the ultramicroscope was first described by Siedentopf and Zigmondy. Since then a number of contributions have been made relating to the application of this instrument in physico-chemical and biologic fields. While so far no very remarkable discoveries have been made, yet it may be stated that the instrument has found a definite place in chemical and biologic work and its field of usefulness is becoming more and more clearly defined and extended.

In bacteriology we should expect it to serve a valuable purpose in the study of those diseases which we now know are caused by a virus—presumably an organism—that will pass through a porcelain filter and therefore can not be seen by the aid of our ordinary microscopes. Rinderpest, foot and mouth disease, peripneumonia and probably also hog cholera and hydrophobia may be mentioned as diseases of this character. With the ultramicroscope it is very difficult or perhaps impossible to differentiate non-motile organisms from colloidal particles present in body fluids or media, but if perchance the causative organism in such diseases as the above mentioned were motile or passed through a motile stage, as may occur, especially in protozoa, they might readily be detected with this apparatus.

Already motile bacteria have been seen in filtered putrefying fluids in which no evidence of organic life otherwise could be detected, and, also, it has been reported that peculiar ultramicroscopic bodies have been seen in fluids from animals suffering with foot and mouth disease. The organism of peripneumonia may readily be seen with the ultra-apparatus, but it may also be seen, if properly stained, with a very high power of an ordinary microscope, though it is so small that little can be made out concerning its morphology.

Recently, Siebert,[1] in Behring's Laboratory, has obtained some excellent ultramicroscopic photographs of various bacteria, both stained and unstained, which bring out certain features of internal structure, branching, etc., very well.

In the field of chemistry, observations have been limited largely to colloidal solutions. Statements in textbooks concerning the invisibility of colloidal particles will have to be changed, for in many of both the inorganic and the organic colloids, myriads of minute particles in rapid oscillatory motion may be seen with the greatest ease, and their behavior studied under the influence of the electric current and enzymes; also such phenomena as precipitation, coagulation and agglutination may be observed.

According to v. Behring,[2] it is by far the most delicate test known for albumin. He has been able to detect as little as one ten-millionth part of a gram of albumin in a cubic centimeter of fluid, and considers it possible to use the ultramicroscope for both qualitative and quantitative albumin determination in urine, comparing it to the use of the polariscope for sugar determinations.

Michaelis[3] does not believe that it can be used for quantitative determinations of albumin because part of the albumin is in complete solution and in this condition can not be seen with the ultramicroscope. He gives a very interesting classification of stains based on their appearance in solution with the ultramicroscope. Three classes are distinguished. The first class is perfectly homogeneous at all dilutions and includes among others eosin, methylene blue, thionin and toluidin blue. At high dilutions, some of these are highly fluorescent. The second class exists in two phases—one completely soluble and therefore homogeneous, and the other consisting of visible particles. In this group are fuchsin, methyl violet, neutral red and picric acid. In the third class are included those dyes which resemble metallic colloidal solutions in that even in the highest dilution they present visible particles and do not show any homogeneous solution of the dye. Anilin blue, indulin and violet black belong here. Dyes of this group stain more diffusely and also very intensely. Fuchsin may be changed from the second to the third group by adding anilin and similar substances, as is done in staining for tubercle bacilli, thus becoming a much more intense stain.

Gruzewska and Biltz[4] have shown that glycogen in water is in reality a colloidal solution, the size of the particles changing with the dilution, and also that the precipitation of glycogen by reagents advances continuously according to the concentration of the precipitating solution.

The ultramicroscopes at present on the market are large and expensive instruments, and therefore they will find their way slowly into the laboratories of the country, but that the apparatus has a definite place in science and is of distinct service in certain fields there can be no doubt.

1. Beiträge zur Experimentellen Therapie, No. 10, 1905.
2. Ultramicroskopische Protein Untersuchungen. v. Behring's Beiträge, No. 10, 1905.
3. Virchow's Arch., vol. clxxix, No. 21.

TRUTH AND POETRY CONCERNING URIC ACID.

XVI.

Many attempts have been made to explain the two chief symptoms of gout, the occurrence of gouty deposits or tophi, on the one hand, and the origin of the acute gouty inflammation or paroxysm on the other.

The tophi, which usually develop slowly and painlessly in the skin or in fibrocartilage, consist chemically chiefly of mononatrium urate with some admixture of monocalcium urate (Ebstein and Sprague.[1]) The anatomy of the nodule has been carefully studied (Riehl,[2] Freudweiler[3]). Along with the uratic deposit in the center there is necrosis; this is surrounded by a connective-tissue capsule in which "foreign-body" giant cells may occur; accumulations of lymphoid cells are met with about the adjoining vessels; doubly refractive granules may be seen inside the giant cells; a few crystals are present in the uninjured tissue at the periphery of the nodule. Precisely similar nodules can be produced experimentally by injection of mononatrium urate (Freudweiler), especially if alcohol be given at the same time (His, Jr.[4]) The nodule is not due to the mechanical action of the urate alone, but the urate, in addition, has a specific effect. The immediate cause of the deposit has not yet been made out, though hypotheses are rife regarding it.

The acute gouty inflammation has been ascribed by many to deposits of uric acid in the joint, but others assert that the acute attack may occur in the absence of deposits in or about the joint, and among these is Ebstein, who holds that the acute attack is due to stasis of urates in solution. Virchow pointed out that when deposits occur in the joints they are in the car-

4. Pflüger's Arch., vol. cv, 1904.
1. Ebstein, W. u. Sprague, C.: Beitrag zur Analyse gichtischer Tophi. Virchow's Arch., 1891, cxxv, 207.
2. Riehl, G.: Zur Anatomie der Gicht, Wien. klin. Wchnschr., 1897, x, 761. See also Ueber die Anatomie der Gichtknoten, Schmidt's Jahrbücher. 1897, cclill, 271.
3. Freudweiler, M.: Experimentelle Untersuchungen über das Wesen der Gichtknoten, Deut. Arch. f. klin. Med., 1898, lxii, 266, and Experimentelle Untersuchungen über die Entstehung der Gichtknoten, *ibid.*, 1901, lxviii, 155.
4. His, Jr., W.: Nachtrag zu der Arbeit von Freudweiler, Deut. Arch. f. klin. Med., 1899, lxv, 618. Schicksale und Wirkungen des sauren harnsauren Natrons in Bauch, und Gelenkhöhle des Kaninchens, Deutsche Arch. f. klin. Med., 1900, lxvii, 81.

tilage, while the inflammation involves the synovial membrane, not the cartilage. Some even deny that the joint is mainly involved, placing the irritative process in the skin (Pfeiffer, Aronsohn), in the lymph vessels (Mordhorst) or even in the peripheral nerves (Wade, Ewart). The inconstancy of the deposits is the point which is disturbing to the acceptance of the view that the acute attack is due to them, but it should be borne in mind that when they are not found they may really have been present for a time and subsequently may have been removed by solution or by the activity of phagocytes. The studies by His, Jr., of uric-acid excretion in the acute attack have shown that uric acid is retained in the period just preceding the attack and is excreted in excess during the attack, a fact which makes it probable that deposits occur somewhere just before the attack and are redissolved again during the attack. But whether this fact stands in a causative relation to the attack, or is a mere coincidence therewith, is not known. Since deposits of urates are frequently found in the joint cartilages after an acute attack, and since in the attack it is the skin and soft parts about the joint (and not elsewhere) which are involved, it seems fair to localize the acute attack in the joint and its immediate neighborhood. Whether the deposits or their solution cause it, or simply accompany it, is not known.

Why the tophi should be painless and chronic and the paroxysm painful and acute has exercised the minds of various observers. It has been suggested that tophi occur in looser tissues, the deposits in firm cartilage leading to a more energetic inflammatory reaction (Garrod). It may be that the rapidity of the deposits is a factor, the tophi forming too slowly to be markedly irritative (Laquer), or it may be that the amount of the deposits dissolved determines the intensity of the inflammation, the deposit itself acting chiefly mechanically, while the dissolved urates act as chemical irritants; the motion at a joint might lead to rapid solution, with production of an acute attack (His, Jr.).

We have hinted that hypotheses concerning the mode of formation of the deposits are abundant. Some ascribe the precipitation to the excessive production of uric acid in the blood and tissue juices; others to a decrease in the solvent power of the blood and juices for uric acid or mononatrium urate; others to the occurrence of uric acid in some less soluble modification than the form we know; and still others to local changes in the tissues themselves rather than in the body fluids or in the uric acid or urates.

The hypothesis that the deposits are due to increased formation of uric acid in the blood has had but few supporters, but a larger number of investigators have been appealed to by the view that the urates are precipitated on account of some diminution of the solvent power of the blood and juices. Many felt sure that the alkalinity of the blood is altered in gout, and there are a host of researches dealing with this point, most of them unfortunately with imperfect technic. The most reliable studies on the alkalinity appear to be those of Magnus-Levy[5]; from them it seems clear that, though the alkalinity of the blood is somewhat variable in gout, the variations occur within narrower limits than those which hold for normal individuals, and, moreover, variations are independent of the acute attacks. It is hard to see, anyway, why, if the deposits are due to diminished alkalinity of the blood, they should not be general instead of local. Ebstein, to avoid this difficulty, assumed locally limited acid production in the tissues as the cause of the deposits. He based his theory, however, on the ground that necrosis precedes the deposit, and this basis has been destroyed by the researches of His and Freudweiler, which demonstrate, we think conclusively, that the deposits precede the necrosis. A better founded view than that of diminished alkalinity is one which supposes that the solvent power of the fluids is diminished through the presence of other salts in solution. The work of Roberts, Ritter and Strauss has gone far to show that deposition may depend on the relative amounts of other salts present, especially the amounts of mononatrium and dinatrium phosphate. Here, again, however, the question has to be asked, How can local rather than general precipitation be accounted for? Of the efforts to answer it none can be regarded as wholly satisfactory. Freudweiler thinks inflammatory change a prerequisite; von Noorden assumes the local activity of some ferment; Zagari and Pace suggest some local alteration in the vital activities of cell nuclei—all vague and unsupported hypotheses. That some local cause, however, must be conceived of as responsible for the local deposits seems necessary; we must wait for future researches to reveal it to us.

That distally placed joints and certain special fibrocartilages should be picked out by the gouty deposits is certainly interesting and peculiar. It can be no accident that these particular localities are sites of predilection. Some believe that nervous influences are answerable—a disease of peripheral trophic nerves (Paget) or disturbances of trophic centers (Duckworth, Luff). Others point out that the parts affected are, as a rule, poorly vascularized. Some of the localities, such as the joint of the great toe, are unusually exposed to pressure and trauma. Possibly the fact that cartilages are rich in sodium salts (Roberts) may be a factor. That the ears and peripheral joints, more than other parts, are exposed to cold is adduced by Mordhorst as, perhaps, important. Our knowledge at present is obviously wholly unsatisfactory regarding the matter.

To sum up this portion of our review, it may be said, then, that, while the tophi and the acute gouty paroxysm appear in different ways, both are apparently associated

5. Magnus-Levy, A.: Harnsäuregehalt und Alkalescenz des Blutes in der Gicht, Verhandl. d. xvi Kongr. f. inn. Med., 1898, 266.

with deposits of mononatrium urate. The mechanism of deposition is not yet wholly clear, though local conditions in the tissues must probably be held responsible in connection with the excess of uric acid in the blood. As to what those local conditions may be, we are as yet profoundly ignorant.

THE LARGER CHARITY.

The old Greek proverb ran, "Count no man happy until his death." In the more modern time it has been said, "Judge no man absolutely until you have read his last book." For those who felt that, in spite of its formal legal punishment, Oscar Wilde's fall was due to mental rather than to moral torsion, to the manifestation of a mind diseased rather than of a will impatient of restraint and hopelessly malicious, his last book, "De Profundis," which he deliberately left to be published posthumously, will prove the confirmation of this impression. Most physicians who have followed his career must have realized that many of his actions were associated with delusions of grandeur, though the world looked on them as scarcely more than the exhibition of overweening vanity. One of the most striking passages in De Profundis is that in which Oscar Wilde sums up what he considers to have been his influence on his generation. This passage reveals better than long hours of investigation of the living subject might have done the true pathologic character of the man. "I was a man," he says, "who stood in symbolic relations to the art and culture of my age. I had realized this for myself at the very dawn of manhood, and had forced my age to realize it afterward. Few men hold such a position in their own lifetime, and have it so acknowledged. It is usually discerned, if discerned at all, by the historian or critic, long after both the man and his age have passed away. With me it was different. I felt it myself, and made others feel it. Byron was a symbolic figure, but his revelations were to the passion of his age and its weariness of passion. Mine were to something more noble, more permanent, of more vital issue, of larger scope." This is, of course, superlatively egotistical, though not much more so than are many passages in Rousseau's Confessions. In both cases, however, the mental degenerescence is patent. Some time there will come the proper appreciation of these pathologic mental conditions that mean so much even for the apparently sane and consequent on it will inevitably develop that larger charity which forgives readily because it knows more of the real conditions, for it has been very well said that to know all would be to forgive all.

SMALLPOX HOSPITALS.

The report issued by the local government board of Liverpool with reference to the influence of smallpox hospitals in spreading the disease among persons living in their neighborhood, confirms the fact that these hospitals should be used not only for the purpose of isolating persons affected with smallpox, but should be themselves isolated so far as locality is concerned. Investigations from Liverpool during the recent severe and protracted epidemic of smallpox show that inhabited areas within a mile of each of the three hospitals used have suffered more severely than the city as a whole, and that within these hospital areas the dwellings nearer the hospitals have sustained a far heavier incidence of smallpox than those farther away. It is shown, further, that the exceptional incidence of smallpox within these areas has corresponded in point of time with the use of these hospitals for the treatment of acute cases of smallpox. It would be of interest, as well as of great importance from the standpoint of prevention, to know whether these findings are also true of the American isolation hospitals. As a rule, however, the isolation hospitals in this country are situated at some point remote from the city or in unpopulated or, at most, thinly populated portions of cities. So far as we are aware, comparatively few cases of smallpox, in proportion, have occurred in the inhabited areas surrounding the isolation hospitals.

ANTICIGARETTE LEGISLATION.

The anticigarette movement does not differ widely from the other "anti" industries in that it is marked by a disregard of facts and that its motive seems to be prejudice based on misinformation. It is peculiar, however, in the respect that one woman seems able to stampede state legislatures into the enactment of ridiculously drastic laws against the least harmful form of tobacco consumption. Indiana and Wisconsin recently have adopted anticigarette legislation that revives memories of the Inquisition. So far as purely physical well-being goes, those who totally abstain from all forms of tobacco have slightly the advantage. Some men for a good lifetime use large amounts of tobacco with impunity. Other men are unable to use even small quantities without more or less early ill effect. Between these groups are the majority of smokers who find that moderate use of tobacco does them no appreciable harm. Until maturity, men should not use tobacco in any form, as its ill effects at that period are definitely established. As to the different forms in which the tobacco temptation is set before us, cigarettes—unless they are sophisticated with the more injurious opium—are no worse for boys than are cigars or a pipe, but their very mildness puts them within the tolerance of the immature smoker. We hold that cigarettes should be kept away from boys, just as should all tobacco; and we endorse all rational efforts to that end. Among adults the use of cigarettes does less harm than the use of tobacco in any other form, with the sole exception that here, again, the very mildness of "the smoke" tempts many to inhale the vapor, and this habit of inhaling is likely in the long run to be detrimental to health. Cigar smoke is not usually inhaled, simply because it is too strong to be withstood by any but an organism most resistant to tobacco. On the other hand are numbers of men who without harm smoke cigarettes moderately and with enjoyment. The paper wrapper, from the hygienic standpoint, has certain decided advantages over the leaf wrapper. Finally, it seems peculiar that the "anticigaretters" should appear in the rôle of advocates of the use of the stronger preparations of the drug, but this is explained

by the vehement unreason of the movement which temporarily overrides the intelligence of the ill-informed. In its present instance it is overreaching itself. Too drastic laws can not be enforced, and the courts will fill them full of holes. This is unfortunate, because the inevitable reaction will again bring the temptation within reach of the young. What we need are moderate laws against the sale of any tobacco to boys, and then their strict enforcement. The cigarette will be with us long after the people of Indiana and Wisconsin have forgotten their present funny statutes.

THE CORSICAN METHOD IN PURE FOOD OPPOSITION.

The interests opposed to a national pure-food law are not noted for the nicest scruples in the choice of methods to postpone the inevitable day when the public health may no longer be made the sport of adulterating plunderers. Few, nevertheless, were prepared for the appalling revelation to be found in the editorial columns of *Collier's Weekly,* May 6, 1905. Therein it is alleged that, recognizing the inevitable failure of a fair combat of fact and argument, the associated adulterators have, without compunction, endeavored to deliver a stab in the back to the pure-food movement. We are told that two sensational and grossly overexaggerated articles, depicting in impossible terms and figures the evils of food and drug adulteration, which recently were widely circulated in the press as having been read before a late meeting in Chicago of the executive committee of the National Association of State Dairy and Food Departments, were never in any way presented to or endorsed or authorized by that association. One of these apocryphal articles was attributed to Dr. J. N. Hurty, secretary of the State Board of Health of Indiana, who, according to *Collier's,* has received a letter of regret from the secretary of the association. Dr. Hurty "delivered no address at all, and was not in Chicago at the time." Some of the devious ways of the "Senegambian" are not yet quite clear, but the plan seems to be to "out-Herod Herod," thus making the pure-food cause ridiculous and at the same time setting up a man of straw which can later be picked to pieces with great indignation and much parade of injured virtue. If *Collier's* information is accurate, its caption for the editorial is apt—"The Poison Campaign." The other article repudiated by the association is said to be by Dr. Edward Gudeman, a New York chemist whose past affiliations have not been with the pure-food cause. There is mention of a "pure-food expert," one "Professor" Hough, who, 'tis said, receives a $25,000 retainer as attorney for "the most powerful organization opposing pure-food legislation." Another who "receives mention" is Mr. Paul Pierce, who propounds in a recent issue of *Public Opinion* terrifying but unconvincing figures. Every physician must constitute himself a committee of one to get these and other facts concerning pure-food legislation before the public in their true light. Then it will be easy next autumn to lay before Congress a clean-cut issue. This is just what the adulterators fear, as the next Congress is a new one elected under the inspiration of the Roosevelt campaign. *Collier's* deserves credit and thanks for uncovering this apparent plot to lead the pure-food advocates into an untenable position.

STATE BOARD EXAMINATIONS DURING 1904.

We publish this week in tabular form,[1] the results of the examinations for medical licenses for 1904 in the various states and territories, together with the number of those licensed on diplomas. The peculiar conditions existing in Florida and in Indian Territory made it impossible to obtain from them reports that could be utilized. The statistical information regarding medical education and licensing included in these tables will be found most valuable and will bear careful study. Many lessons can be learned from these tables by those who are sufficiently interested to dig them out.

TABLE E—COLLEGES GROUPED BY STATES,
Showing Number Examined and Percentage of Failures.

COLLEGES OF	Graduates 1904.		Graduates 1900-04.		Graduates 1899 & prev.		Graduates all Years.		Rank Acc'd'g to No. Examined.	Rank Acc'd'g to Low Per Cent.
	Number Examined.	Per cent Failed.	Number Examined.	Per cent Failed.	Number Examined.	Per cent Failed.	Number Examined.	Per cent Failed.		
Alabama	32	3.1	36	2.8	5	20.0	41	11.1	21	10
Arkansas	1	0.	1	0.	1	100.0	3	33.3	32	30
California	116	18.1	157	17.8	6	50.0	163	18.9	11	23
Colorado	2	0.	20	5.0	4	0	24	4.2	28	2
Connnecticut	14	0.	36	5.5	4	0	40	5.0	23	3
D. of Columbia	82	12.2	135	12.6	12	33.3	148	14.8	14	17
Georgia	73	1.4	82	6.1	7	28.5	91	8.8	18	9
Illinois	720	4.9	936	6.6	81	23.4	1023	8.2	1	7
Indiana	34	8.8	40	10.0	4	75.0	45	15.5	22	19
Iowa	139	10.1	149	12.1	22	36.4	171	15.2	10	18
Kansas	8	0.	7	14.3	4	50.0	11	27.3	31	25
Kentucky	99	28.3	155	29.7	40	40.0	211	32.2	9	29
Louisiana	74	6.7	79	10.1	6	16.7	107	15.9	17	21
Maine	25	20.0	29	17.2	3	0	32	15.6	25	20
Maryland	399	27.8	579	28.8	41	26.8	620	28.7	4	26
Massachusetts	179	6.7	259	6.2	35	17.1	294	7.5	8	5
Michigan	67	3.0	119	7.5	40	27.5	159	12.5	12	13
Minnesota	101	8.9	139	12.9	10	10.0	149	12.8	13	14
*Missouri	176	16.5	230	24.3	79*	48.1	310	30.3	7	27
Nebraska	83	6.0	100	10.0	8	25.0	108	11.1	16	11
New Hampshire	5	0.	12	8.3	2	50.0	14	13.6	29	15
New York	391	2.5	564	2.8	82	22.0	646	5.3	3	4
North Carolina	44	34.1	58	39.6	.....	.....	58	39.6	20	32
Ohio	211	9.0	257	14.8	58	39.7	316	19.3	6	24
Oregon	28	3.6	29	3.4	.....	.....	29	3.4	26	1
Pennsylvania	439	8.0	610	10.6	49	22.4	659	11.5	2	12
South Carolina	21	4.8	24	4.2	2	50.0	26	7.7	27	6
Tennessee	219	25.1	315	3.0	72	29.2	476	30.7	5	28
Texas	25	16.0	33	15.1	2	0.	35	14.3	24	16
Vermont	56	8.9	74	8.1	13	69.2	87	17.2	19	22
Virginia	80	6.2	119	8.4	9	11.1	129	8.5	15	8
Wisconsin	8	37.5	12	33.3	.....	.....	12	33.3	30	31
All States	3951	11.2	5395	13.9	701	30.5	6241	16.0	.....	.....

* Figures for Missouri would doubtless be different, but owing to the fact that the year of graduation was not kept we could not use their report, not being able to differentiate between graduates and non-graduates.

As will be seen, Illinois had the largest number examined before the various state boards, followed by Pennsylvania, New York, Maryland, Tennessee and Ohio. Of the states having 100 or more examined, New York ranks first in having the lowest percentage of failures, followed, respectively, by Massachusetts, Illinois, Nebraska and Pennsylvania. Twenty-one states secure rank above the average.

Table A shows the number licensed from all colleges, and from the undergraduates. Table B gives the results of 1904 graduates. It is seen that of all candidates examined during 1904, 3,982, or 56.5 per cent., were graduates of 1904. In Table C we have taken graduates from 1900 to 1904, inclusive, to represent recent graduates, while Table D is made up of graduates of 1899 and previous years as representing older practi-

1. The larger tables are inserted opposite page 1476.

TABLE F—COLLEGES HAVING 50 OR MORE EXAMINED.

TABLE SHOWS TOTAL NUMBER EXAMINED, PERCENTAGE OF FAILURES AND NUMBER OF STATES IN WHICH EACH COLLEGE HAD REPRESENTATIVES.

NAME OF COLLEGE.	Graduates 1904.			Graduates 1900-1904.			Graduates 1899 and Prev.			Graduates all Years.			Margin No.
	No. Examined.	Per Cent Failed.	No. States.	No. Examined.	Per Cent Failed.	No. States.	No. Examined.	Per Cent Failed.	No. States.	No. Examined.	Per Cent Failed.	No. States.	
Rush Medical College	124	0.8	13	221	2.3	25	39	25.6	16	260	5.8	26	32
University of Illinois	191	3.6	17	227	5 3	20	17	29.4	13	244	7.0	22	25
College of Physicians and Surgeons, N. Y.	135	3.7	14	221	3.2	22	17	11.8	10	238	3.8	26	101
Jefferson Medical College	136	7.3	22	195	10.3	29	20	30.0	16	215	12.1	34	130
Northwestern University Medical School	129	2.3	17	147	1.4	21	12	0.	9	161	1.3	23	31
Memphis Hospital Medical College	58	26.3	7	81	25.9	10	11	9.1	6	161	36.7	13	141
Harvard University Medical School	90	0.	6	134	0.	13	22	4.5	13	156	0.6	17	70
University of Maryland	93	24.7	18	134	23.1	18	7	14.5	8	141	22.7	20	65
University of Pennslyvania	70	5.7	9	118	5.9	21	13	8.3	9	131	6.1	26	128
College of Physicians and Surgeons, Balt.	80	30.0	14	107	28.0	20	19	15.8	12	126	26.2	25	62
Baltimore Medical College	84	21.4	16	114	24.5	20	8	25.0	10	121	24.0	26	60
University of Michigan	52	3.8	19	87	4.6	26	22	31.8	13	109	10.0	29	76
University of Minnesota	80	1.3	6	98	2.0	11	8	0.	7	106	1.9	13	79
Medico-Chirurgical College, Phila., Pa	78	16.7	7	98	21.4	13	4	0.	4	102	20 8	16	132
Bellevue Hospital	38	2.6	6	58	1.7	6	41	26 8	27	99	12.1	30	107
Maryland Medical College	74	37.8	13	91	39.6	16				91	39.5	16	67
Tulane University	69	4.3	5	69	4.3	5	4	25.0	4	89	7.8	9	58
University of Vermont	56	8.9	8	74	8.1	10	13	69.2	7	87	17.2	12	154
Hahnemann Medical Col. and Hos., Pa	69	1.4	8	82	2.4	15	2	50.0	3	84	3 6	16	129
Western Pennslyvania Medical College	53	7.5	4	68	16.1	5	4	50.0	3	72	18.0	7	133
University of the South	38	47.4	9	63	49.2	15	3	66.7	3	70	51.4	17	142
Columbian University, D. C	44	4.5	7	66	3.0	13	4	25.0	5	70	4.3	16	15
Cornell University	47	2.1	4	67	1.5	7	2	50.0	2	69	2.8	8	102
Tufts College Medical School	44	6.8	4	63	7.9	11	6	83.3	4	69	14.5	11	71
Illinois Medical College	42	11.9	10	61	19.7	17	2	50.0	2	65	21.5	19	29
University of Iowa	55	10.0	6	57	8.7	5	8	37.5	8	65	12.4	8	46
Baltimore University	27	45.9	13	59	67 8	14	5	80.0	5	65	69.2	15	61
Barnes Medical College	33	12.1	10	51	23.5	18	12	50.0	11	65	30.8	24	89
Keokuk Med. Coll. of Physicians and Surg.	45	15.5	3	53	18.9	5	9	33.3	9	62	21.0	11	43
Ohio Medical University	37	5.4	5	42	11.9	10	18	38.9	14	61	19.7	20	121
Johns Hopkins University	26	3.8	15	58	1.7	20	1	0.	1	59	1.7	20	63
Medical College of Virginia	44	6.8	4	54	7.4	4	3	0.	4	57	7 0	6	155
Hahnemann Medical Col., and Hos., Chi.	45	2.2	6	52	1.9	9	3	33.3	4	55	3.6	22	26
Woman's Medical College of Pennsylvania	32	9.4	10	48	8.3	13	6	16 7	5	54	9.2	12	131
Chicago Homeopathic Medical College	40	7.5	9	49	12.2	11	4	0.	5	53	11.3	14	23
Marion Sims-Beaumont Col. of Med., St. L.	40	10.0	9	44	13.6	11	8	25.0	10	53	15.1	17	90
Albany Medical College	38	2.6	3	46	4.3	5	5	60 0	3	51	9.8	7	100
Long Island College Hospital	35	0.	2	48	2.1	3	3	0.	4	51	2.0	7	104
Vanderbilt University	24	0.	6	29	0.	8	22	9.1	13	51	5.9	18	138
Kentucky School of Medicine	20	35.0	7	40	27.5	15	10	40.0	9	50	30.0	21	51
University of Buffalo	39	5.1	3	44	6.8	3	6	16.7	5	50	8.0	7	109
Medical College of Ohio	37	0.	2	43	0.	6	7	14.5	7	50	2.0	11	118
Totals	2591	10.0	.....	3561	11.6	.....	430	26.7	.....	4088	14.0	46	

Eleven of the above 42 colleges had a failure percentage of 5 or less, and ten were between 5 and 10 per cent. Therefore half of the group had a percentage of 10 or less. Only two colleges had a failure percentage above 40, Baltimore University reaching 69.2 and the University of the South 51.4.

Some of the colleges show a better percentage among their older graduates than among the recent, an apparent retrogression. The majority, however, as shown by the average percentages seem to be lowering their failure percentages, which points to a higher standard.

In making comparisons, beside the percentage, one must consider also the number examined and the number of state boards before which the college was represented. The above group is arranged according to the number examined. As to the representation before state boards, Jefferson leads with a record of 34, followed by Bellevue, 30; University of Michigan, 29, and Rush, Physicians and Surgeons, New York, and Baltimore Medical Colleges, each before 26. Sixteen colleges were represented before twenty or more different state boards.

tioners. Tables B, C and D are made for the purpose of showing the standing of graduates of the year, of the recent graduates—since 1900—and of the older practitioners. The information here supplied may help in solving the problems connected with the reciprocity movement. We find 5,551, or about 79 per cent. of the total, to be recent graduates, while about 12 per cent. of the total are older practitioners.

Table E is based on the first four tables, and is interesting since by it we can see whether the colleges in a particular state, as a group, are progressing. It is encouraging to note that in almost all states the percentage of failures is smaller for the 1904 graduates than for the 1900-1904 group and is smaller for this second group than for the graduates of 1899 and previous. Further, this table shows which states send out the most physicians and, if grades mean anything, the class of physicians.

Table F, likewise based on the first four tables, allows us to make comparisons between the larger colleges, or the 42 having 50 or more candidates examined before state boards during the year. There were 147 colleges represented, while 105, or 71 per cent., had less than 50 candidates each, and 62, or 42 per cent., had less than 25 candidates each. To put it another way, 2,271, or about 32 per cent. of all the candidates, came from 14, or 9.5 per cent. of all the colleges represented, while 4,088, or 58 per cent. of all candidates, came from 42, or 29.3 per cent., of the colleges.

A study of the failures is likewise interesting. The 14 colleges above mentioned, while furnishing 32 per cent. of all candidates, had less than 20 per cent. of all failures, while the 42 largest colleges, although having 58 per cent. of all candidates, had only 41.4 per cent. of all failures, thus favoring the larger colleges from the standpoint of excellence.

While 1904 graduates made up 56.5 per cent. of all candidates, they had only 449, or 32.9 per cent., of the 1,363 failures. The recent graduates (of 1900 to 1904, inclusive), while giving 5,551, or 79 per cent.

TABLE G.—COMPARING RESULTS IN HOME STATES AND ELSEWHERE.

Marginal Number.	Result in home state.		Results in all other states.		Registered on Diploma.	Total.
	P	F	P	F		
1	3	..	..	..	..	3
2	27	1	1	..	..	29
3	1	..	..	..	..	1
4	35	3	1	..	1	40
5	22	2	..	..	..	24
6	3	2	..	1	..	6
7	6	..	..	..	..	6
8	7	10	..	..	2	19
9	..	..	..	..	..	..
10	20	3	1	..	..	24
*11	..	..	..	..	26	26
*12	..	..	..	..	6	6
*13	..	..	2	..	13	15
14	11	..	3	..	..	14
15	28	..	14	2	..	44
16	8	1	9	..	1	19
17	3	3	10	4	..	20
18	24	..	4	..	..	28
19	15	..	1	1	..	17
20	25	..	2	..	..	28
21	1	..	4	..	..	5
22	10	..	2	..	..	12
23	25	..	12	3	3	43
24	11	4	1	1	1	18
25	141	2	43	5	6	197
26	35	1	9	..	..	45
27	15	2	2	1	..	20
28	8	..	7	..	..	15
29	29	2	8	3	..	42
30	18	1	..	..	..	19
31	72	..	54	3	3	132
32	103	..	20	1	4	128
33	13	4	2	..	..	19
34	19	2	3	..	..	24
35	18	..	..	..	1	6
36	8	..	..	1	..	9
37	13	2	6	..	..	21
38	3	..	..	..	..	3
39	..	..	..	..	..	..
40	1	..	..	..	..	1
41	..	..	..	..	..	..
42	13	..	..	..	..	13
43	37	6	1	1	1	46
44	12	..	4	2	1	19
45	8	..	..	..	..	8
46	48	3	2	2	1	56
47	..	..	3	..	..	3
48	1	..	4	..	..	5
49	..	..	..	..	..	..
50	..	1	5	8	62	76
*51	..	..	13	7	31	51
*52	..	..	15	1	29	45
*53	..	..	..	..	..	..
*54	..	..	..	..	1	1
*55	..	..	17	5	35	57
*56	..	..	21	5	23	49
57	2	2	1	..	..	5
58	53	..	13	3	1	70
59	19	5	1	..	..	25
60	12	6	54	12	..	84
61	..	2	10	15	8	35
62	15	10	41	14	2	82
63	5	..	20	1	..	26
64	12	..	2	..	..	14
65	31	13	39	10	1	94
66	1	..	..	..	..	1
67	8	10	38	18	1	75
68	12	..	8	1	..	21
69	9	4	7	4	..	24
70	82	..	8	..	..	90
71	37	3	4	..	..	44
72	4	..	8	..	1	13
73	1	..	1	..	..	2
74	..	..	1	..	..	1
75	..	..	..	..	..	..
76	30	..	20	2	1	53
77	..	..	..	..	1	1
78	..	..	..	..	..	..
79	63	1	16	..	..	80
80	9	6	4	2	..	21
81	..	..	..	..	..	..
*82	..	..	4	2	6	12
*83	..	..	4	3	36	43
*84	..	..	2	..	7	9
85	..	..	6	3	8	17
*86	..	..	2	1	9	12
*87	..	..	3	1	4	8
*88	..	..	6	1	13	20
*89	..	..	29	4	66	99
*90	..	..	36	4	32	72
*91	..	..	25	4	22	51
*92	..	..	..	1	6	7
*93	..	..	1	4	5	10
*94	..	..	27	1	29	57
*95	..	..	2	..	5	7
96	28	..	1	..	2	31
97	23	..	7	..	..	30
98	18	4	1	1	3	27
99	1	..	4	..	..	5
100	35	1	2	..	..	38
101	102	4	28	1	1	136
102	42	1	4	..	..	47
103	7	..	..	..	3	10
104	34	..	1	..	..	35
105	17	..	1	..	..	18
106	4	..	..	..	..	4
107	30	..	7	1	..	38
108	27	..	3	..	..	30
109	37	2	..	..	2	41
110	2	1	6	14	..	23
111	..	..	..	..	..	..
112	16	..	1	..	..	17
113	4	..	..	..	..	4
114	25	..	..	1	..	26
115	11	..	1	..	..	12
116	13	3	4	2	1	23
117	6	1	6	2	..	15
118	37	..	..	..	1	38
119	4	..	1	1	1	7
120	14	..	3	2	6	25
121	30	2	5	..	5	42
122	26	2	3	1	..	32
123	3	2	..	..	..	5
124	..	..	..	..	..	..
125	16	..	2	..	..	18
126	8	..	1	1	..	10
127	1	..	..	..	..	1
128	56	4	10	..	1	71
129	52	..	16	1	..	69
130	78	7	48	3	1	137
131	17	1	12	2	2	34
132	50	13	15	..	..	78
133	45	4	4	..	..	53
134	19	1	1	..	..	21
135	2	2	..	..	2	6
136	..	..	..	..	..	..
137	8	1	10	1	2	22
138	17	..	7	..	..	24
139	5	4	4	2	5	20
140	7	4	20	5	7	43
141	12	4	31	11	..	58
142	..	..	20	18	..	38
143	..	..	..	..	..	..
144	5	..	14	2	1	22
145	..	..	2	1	..	3
146	..	..	1	..	..	1
147	17	..	1	..	..	18
148	..	1	1	..	..	2
149	..	..	..	..	..	..
150	1	2	..	1	..	4
151	..	..	..	..	..	..
152	..	..	..	..	..	..
153	..	..	..	..	..	..
154	30	..	21	5	..	56
155	30	2	11	1	..	44
156	17	1	8	..	..	26
157	6	..	3	1	..	10
158	..	..	..	..	..	..
159	..	2	2	..	..	4
160	2	1	1	..	..	4
Total..	2596		1355		559	4510
Passed	2402		1105		....	3507
Failed.	194		250		....	444
Per Cent of Failures.	7.5		18.4		....	11.2

This table is a summary of Table B. All graduates who were examined in the state in which the college is located are grouped in one column, while all the graduates of that college who were examined in other states are in another column. This is for the purpose of showing the number of graduates who stay in the state in which the college is located; also to show what is evidently a fact, that, as a rule, the graduates of a certain school have a much better chance of passing the examination in the state in which the school is located than they have elsewhere. This should always be considered in making comparisons between colleges. A college having an exceedingly low standard, by having its graduates all locate in the home state, may thus show a lower percentage of failures than a college of much higher standard. This table will enable one to correct such an impression.

Colorado, Kentucky and Missouri registered without examination graduates of their own schools. These are starred in the table. There is nothing, therefore, to appear in the first double column opposite the colleges of these states.

To save space, marginal numbers are used in place of names of colleges. The numbers correspond with those in the large tables.

To illustrate the working of the table, take college No. 15: By reference to Table B, 15 is seen to be Columbian University, which is located in the District of Columbia. This institution had 28 graduates pass in the home state (District of Columbia) and none fail. In all other states there were 16 graduates examined, of whom 14 passed and 2 failed. P means passed, F failed.

of all candidates, have only 781, or 57.3 per cent. of all failures. On the other hand, the older practitioners, having 824, or 12 per cent. of all candidates, furnished 250, or about 18 per cent. of all failures.

The largest percentage of failures, of course, came in the 660 undergraduates (and others where the year of graduation had not been recorded). These furnished about 9 per cent. of all candidates and 340, or 24.8 per cent. of all failures. These results show progress in the right direction.

States vary much in the severity of marking. Kentucky, where the law requiring examination began only during the year, rejected 8 out of 12, or 60 per cent. of all applicants. Oklahoma is next (likewise but recently holding examination), rejecting 54.5 per cent. of all applicants.

The percentages by the various state boards must not be considered alone, however, since some states—New York, for example—scrutinize the applicants' credentials very carefully beforehand and thereby reject without examination most of those who otherwise would swell the number of rejected applicants.

Colorado, Kentucky, Missouri and Wyoming issued licenses without examination during part or all of 1904 on presentation of a diploma from a recognized medical college. The first three also held examinations the latter part of the year and hereafter in those states all applicants will have to pass examination. Undergraduates are allowed licenses on passing examination in Alabama, Arkansas, Colorado, Mississippi, Missouri, Oklahoma, Tennessee and West Virginia.

It is certainly gratifying to THE JOURNAL to be able to publish such complete statistics on this subject, and for this it desires to thank the secretaries of the various boards for their hearty and complete co-operation with us. We feel that the results are well worth the labor.

Medical News

DISTRICT OF COLUMBIA.

Smallpox.—It is reported that smallpox in virulent type has broken out in Washington.

Hospital Changes.—Dr. T. J. Sullivan has been made resident physician of the Washington Asylum Hospital, vice Dr. David C. Coleman, resigned.——Dr. Martin has been appointed resident physician at the Emergency Hospital, Washington, vice Dr. De Haven Sharp, resigned. Dr. John Holmes succeeds Dr. Martin.

Army Medical School Commencement.—The annual commencement exercises were held in Washington, April 11, when Surgeon-General Robert M. O'Reilly presented diplomas to 11 officers of the medical corps of the army; 2 contract surgeons, and 5 National Guard medical officers. Col. Charles L. Heizmann, assistant surgeon general, presided.

New Army Hospital.—The Secretary of War has approved the recommendation of the surgeon general for the erection of a new general army hospital nearly opposite the Battle National Cemetery. The property acquired contains 43 acres and cost about $98,000. The limit of cost of the hospital as fixed by congress was $300,000, of which $100,000 was made immediately applicable for the purchase of the site.

ILLINOIS.

March Smallpox.—During March 227 cases of smallpox, with 6 deaths, were reported to the State Board of Health.

Will Give Hospital.—Dr. John Warner, Clinton, will build and endow a public hospital at Clinton. The building is expected to cost $35,000.

Personal.—Dr. William J. Eddy has been elected mayor of Shelbyville.——Dr. Edmund B. Owens, has been appointed health commissioner of Dixon.——Dr. Jane R. Keefer, Sterling, was recently operated on for appendicitis and gallstone disease, at Augustana Hospital, Chicago, and is progressing favorably toward recovery.

Steal March on County Society.—It is reported that three practitioners of Champaign County, whose names do not appear either in the Illinois Official Register or in Polk's Directory, and who were barred from membership in the Champaign County Medical Society, have retaliated by incorporating as the "Champaign County Medical Society or Association, Champaign; Scientific; Fraternal."

Legislative News.—The Committee on Judiciary of the House of Representatives gave a hearing on the optometry bill (Senate No. 237) May 2. The passage of the bill was urged by the secretary of the Illinois Optical Society. Drs. Wm. H. Wilder and E. V. L. Brown, representing the Chicago Medical Society, and J. A. Egan of the State Board of Health, argued against the bill. At the conclusion of the hearing the bill was killed by a unanimous vote of the committee.——The status of the anti-vivisection bill is unchanged.——Senate bill No. 311 (osteopathy), referred to the House April 21, was read the first time May 2, and referred to committee on judiciary.

Chicago.

On Coroner's Staff.—Dr. Warren H. Hunter has been appointed a member of the medical staff of the coroner's office. ——Dr. Otto W. Lewke, it is announced, will be retained.

Low April Death Rate.—Up to April 29 there had been reported 2,222 deaths, equivalent to an annual death rate of 14.02 per 1,000. This is the lowest April death rate except one, in 1897, which was 13.84. The average April death rate for the decennium was 16.22 per 1,000.

Meningitis Figures.—Since the last cerebrospinal fever flurry in 1898, when the disease caused 17 deaths all told in Chicago, there has been an average decrease of 21 per cent. in the deaths from the different forms of meningitis—epidemic, tubercular, cerebral and spinal—and the greatest total number of deaths from the epidemic form in any year was 18 in 1899.

The Deaths of the Week.—During the week ended April 29, 527 deaths were reported, equivalent to an annual mortality of 13.80 per 1,000. Consumption retains the lead with 83, followed by pneumonia, 74; nephritis, 42; heart diseases, 36; acute intestinal diseases and cancer, each 30; violence, 29; whooping cough, 27; measles, 9; diphtheria, 6, and typhoid fever, 3.

German Hospital Staff.—The revised list of the medical staff of the German Hospital is as follows: Consulting physician, Dr. Julius H. Hoelscher; attending physicians, Drs. Rudolph Menn and Frank W. Lambden; attending surgeons, Drs. William C. Wermuth and Emanuel J. Senn; attending gynecologists, Drs. H. Edward Sauer and Cecil von Bachelle; attending oculist and aurist, Dr. David Fiske; attending obstetrician, Dr. Wallace F. Grosvenor, and skin and urinary diseases, Dr. Louis E. Schmidt.

MICHIGAN.

Appropriation Allowed.—As a result of persistent effort on the part of the medical profession of Detroit, the common council appropriated $100,000 for the contagious disease hospital, of which the city is in great need.

Commencement.—The thirty-seventh annual commencement exercises of the Detroit College of Medicine were held at the Light Guard Armory May 4.——From April 26 to May 6, the annual clinic of the Alumni Association of the college was held.

In Peril by Fire.—The house of Dr. Oliver P. Barber, Saginaw, was destroyed by fire April 17. Dr. Barber, who was alone in the house, attempted to lower himself from his bedroom window by means of a sheet, which gave way and he fell, breaking several fingers and spraining both ankles. The loss was about $20,000.

Personal.—Dr. Ernest Shillito has been appointed health officer of Marcellus township.——Dr. Arthur S. Scott, Laingsburg, has been appointed health officer of that village and of Sciota township.——Dr. Elliott K. Herdman has been re-elected city physician of Ypsilanti.——Dr. Walter E. Wilson, Grand Ledge, has been appointed a member of the State Board of Pardons, vice Dr. Frank W. Shunway, Williamston.——Dr. Louis S. Joy has been re-elected health officer of Marshall.—— Dr. George L. Chamberlain has retired from the superintendency of the Upper Peninsula Hospital for the Insane, Newberry.——Dr. Charles Freiberg has succeeded Dr. Morton Gallagher as a member of the Bay City Board of Health.

NEBRASKA.

Creighton Commencement.—A class of 34 was graduated from Creighton Medical College, Omaha, April 29. Dr. Albert P. Condon delivered the doctorate address.

Silver Jubilee of Hospital.—Creighton Memorial (St. Joseph's) Hospital, Omaha, celebrated the twenty-fifth anniversary of its institution, with solemn ceremony, April 27.

Personal—Ray L. Pheasant returned to his home in Osceola, from Europe, April 14.——Dr. William H. Slattery has been made city physician of Lincoln, vice Dr. John V. Beachly.

Governor Vetoes Medical Bill.—The medical profession of Nebraska again passed through its biennial struggle for better medical legislation in vain. The McMullen Bill was a clear, legal definition of what constitutes a physician and how one shall be recognized as such. It provides that any one shall be considered a legal physician, and required to apply for and to receive a license, after a successful examination, who holds himself out to the public as being able to diagnose human disease, who prescribes any form of treatment for the palliation, relief or cure of any physical or mental ailment, with the intention of receiving compensation therefor, or one who uses any title to indicate that he treats human diseases, or one who maintains an office for the diagnosis or treatment of disease. It also provides that any one who thus holds himself out as a physician and who does not possess a license shall be fined, on conviction, $50 to $300 and costs. This bill was passed by the house without amendment. It covers every phase of medical practice, and was modeled on the ideal medical bill, first suggested by Dr. Van Meter of Colorado. The senate amended the bill so that the osteopaths were to be exempted from examination in all questions relating to the administration of drugs and the treatment of disease. This amendment was concurred in by the house and the amended bill was sent to the governor for his signature, but the governor vetoed the bill.

NEW JERSEY.

New Hospital.—The Jersey City Board of Finance has ordered the issue of bonds to the amount of $200,000 for a new city hospital. The construction is to be under the charge of the Board of Health.

Hospital Examinations.—An examination for the position of resident physician in the Atlantic City Hospital was held in the hospital building, May 6.——Examination for two positions on the resident staff of St. Joseph's Hospital, Paterson, was held at the hospital April 11.

Donation to Trenton Hospital.—Charles G. Roebling, head of the Roebling corporation in Trenton, has donated $20,000 to St. Francis Hospital, the income of which is to be used annually toward the running expenses of the institution. The money is invested so as to net the hospital $1,000 a year.

Personal.—Dr. Frank C. Henry, member of the assembly, has been appointed health officer of the port of Perth Amboy.—— Drs. Paul L. Cort, Trenton, and Paul Traub, Bordentown, have been elected to the staff of Mercer Hospital, Trenton.——Dr. Daniel Jenifer, Loch Raven, Md., has been appointed resident physician at the Atlantic City Hospital.

Medical Society Meeting.—At the annual meeting of the Camden County Medical Society, April 25, Mrs. Lydia Mecray presented to the society a portrait in oil of the late Dr. Alexander Mecray. The following officers were elected: President, Dr. William A. Westcott, Berlin; vice-president, Dr. Joel W. Fithian, Camden; secretary, Dr. Paul M. Mecray, Camden; treasurer, Dr. Sylvan G. Bushey, Camden; historian, Dr. Alfred Cramer, Camden; reporter, Dr. Ezra B. Sharp, Camden; censor, Dr. Duncan W. Blake, Gloucester City, and trustee, Dr. H. Genet Taylor, Camden.

NEW YORK.

Sanatorium Burned.—Verona Springs Sanatorium, owned by Dr. Gilbert N. Lehr, Rome, was destroyed by fire, April 21, with a loss of $25,000.

Albany Medical College held its seventy-fourth annual commencement exercises, May 2, graduating a class of 53. Dr. Hermon C. Gordinier delivered the address of welcome, and Hon. Judson S. Landon delivered the address of the day.

Osteopathy Bill Defeated.—Senator Davis' bill regulating osteopathy was defeated by a very close margin of 2 votes. As he promised to introduce it again later it behooves the medical profession to watch and guard this most pernicious class legislation.

Alumni Clinics.—A feature of this year's meeting of the Alumni Association of the University of Buffalo, aside from the scientific papers and the annual banquet, was a well-arranged series of clinics given May 4 and 5, at various hospitals, especially for the benefit of the alumni.

Hospital Notes.—Malone Hospital Association has been incorporated "to erect and maintain a hospital for the reception and treatment of suitable medical and surgical patients."——The new hospital in connection with the Orleans County Almshouse, Albion, erected at a cost of $25,000, has been completed.

Work of the Legislature.—The bill abolishing coroners in the City of Greater New York passed the senate by a vote of 29 to 16.——The assembly has passed the bill abolishing the state boards of visitation of the state hospitals and restoring the local boards of management. Each local board will consist of seven members, two of whom are women, and will be appointed by the governor.——After a hard fight the senate, by a vote of 24 to 19, defeated the bill placing the osteopaths under the jurisdiction of the State Board of Regents and compelling all masseurs to pass an examination.——Another bill passed by the senate provides that any member of the State Lunacy Commission or medical inspector may visit any sanitarium or other institution to see if insane persons are confined in them.——The Fish bill has passed the assembly. This bill requires every person having charge of a milk-gathering station shall be licensed by the State Commissioners of Agriculture. The bill is designed to break up the practice of skimming milk, to get the cream, at stations where milk is received for shipment to New York.——The governor signed the bill authorizing New York City to cancel assessments against Manhattan Hospital for local improvements.——A bill has been introduced repealing the compulsory vaccination law by providing that a pupil in a public school need not submit to vaccination if a parent or guardian will submit an affidavit that such vaccination would endanger the health of the child.——A bill has been presented to increase the pay of all inspectors of the Health Department, irrespective of the work performed. This measure has been denounced by the secretary of the City Club.

New York City.

New Milk Laboratory.—Nathan Straus has purchased property on East 32d Street on which he will erect a new laboratory for the pasteurization of milk for the poor of the city. Work will be begun on the new building June 1.

Personal.—Dr. L. Pierce Clark has been appointed consulting neurologist at the Craig Colony for Epileptics, Sonyea.—Dr. Silas C. Blaisdell, Brooklyn, had his right leg fractured, April 23, when his automobile collided with an electric car.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended April 22, 356 cases of measles, with 16 deaths; 314 cases of tuberculosis, with 189 deaths; 294 cases of diphtheria, with 42 deaths; 212 cases of scarlet fever, with 12 deaths; 111 cases of cerebrospinal meningitis, with 104 deaths; 15 cases of typhoid fever, with 7 deaths; and 61 cases of chicken-pox.

Sloane Maternity Statistics.—Among the first 15,541 confinements there was a fetal mortality for induced labor in contracted pelves of 21 per cent.; for medium forceps in contracted pelves 20 per cent., and for high forceps operations performed for contracted pelves 57.6 per cent. Where version was performed for pelvic deformity, the fetal mortality was 46.3 per cent. In 5 symphysiotomies, one baby was stillborn and two mothers died from sepsis, a maternal mortality of 40 per cent., and an infant mortality of 20 per cent. The records show that 56 craniotomies have been performed for pelvic obstructions.

OREGON.

Personal.—Dr. Kenneth A. J. Mackenzie, Portland, has been appointed medical director of the Lewis and Clark Exposition.

Dr. Mackenzie Weds.—Dr. Kenneth A. J. MacKenzie, Portland, chairman of the Committee of Arrangements for the coming session of the American Medical Association, was married, April 26, to Mrs. R. E. Brown of Spokane, Wash.

New Building for Sanitarium.—A new building is being erected at Mount Tabor for the Crystal Springs Sanitarium, of which Dr. Henry W. Coe has been president for the last 12 years. Dr. Robert L. Gillespie is resident medical director and Dr. William House, resident physician.

Hospital for Fair.—An emergency hospital is under construction on the exposition grounds, near the Forestry building. The structure will be one story in height, and will contain about ten rooms. Two trained nurses and two house surgeons will be in charge under the supervision of the medical director.

Health Board Changes.—At the meeting of the State Board of Health, March 21, Dr. Andrew C. Smith, Portland, was re-elected president; Dr. E. Barton Pickel, Medford, was elected vice-president, and Dr. Robert C. Yenney, Portland, secretary and State Health Officer, vice Dr. Woods Hutchinson, resigned.

Colleges Send Forth Graduates.—The commencement exercises of the medical department of the University of Oregon, Portland, were held April 17. A class of 27 was graduated. Hon. M. C. George delivered the annual address. Dr. George B. Story delivered the charge to the class, and President P. L. Campbell of the university, conferred the degrees.——On March 31, a class of 7 was graduated from the Medical Department of Willamette University, Salem. Dr. Walter T. Williamson, Portland, delivered the address to the graduates and President Coleman of the university awarded the diplomas.

PENNSYLVANIA.

Smallpox.—Fannett township, Franklin County, is under quarantine on account of 50 cases of smallpox.——The epidemic at Paxtang is said to be over.

Personal.—Dr. David S. Quickel has been made president of the York Haven Board of Health.——Dr. J. D. Hogue has been appointed resident physician at the Altoona Hospital.——Dr. Thomas B. Weaver, Allentown, has been selected as resident physician of St. Luke's Hospital, South Bethlehem.——Dr. Frank Swartzlander has been elected president of the Doylestown Board of Health.

Again Expelled.—Dr. James R. Care, Norristown, who was expelled from the Montgomery County Medical Society, who appealed to the County Court, alleging that the action of the society was irregular and without cause, and who was sustained and ordered reinstated, tendered his resignation; it was not accepted, as charges had been preferred against him, and he was again expelled, the cause assigned being the rules relative to dues.

Bills Approved.—The bills creating a department of health with a commissioner at its head at a salary of $10,000, appropriating $50,000 to be used as an emergency fund by the department for the suppression of epidemics in the next two years were signed and approved by Governor Pennypacker, April 27. The bill abolishes the State Board of Health and advises the governor to appoint an advisory board of five physicians, and one civil engineer to assist the Commissioner of Health. The commissioner is authorized to apportion the state in 10 districts for the registration of vital statistics, and to appoint an officer for each district at an annual salary of $2,500. The bill also gives the commissioner control of the streams of the state, except waters pumped from coal mines or tanneries, and authorizes him to establish sanitary regulations for the state.——The bill prohibiting the use of preservatives and harmful coloring matter in fruit syrups was also approved and signed by the governor.

Philadelphia.

Philadelphia, Not Baltimore.—The news item entitled "Diphtheria Statistics," which appeared in last week's issue under the head of "Baltimore," should have appeared in the news from Philadelphia, to which the statistics refer.

Health Report.—The total number of deaths reported for the week reached 552, an increase of 97 over the number reported last week, and a decrease of 39 over the number reported during the corresponding period of last year. There was a decided increase of typhoid fever, which is spread throughout the city. There were 289 cases of typhoid fever reported for the

week, with 20 deaths, as compared with 149 cases and 10 deaths for the previous week. The principal causes of death were as follows: Typhoid fever, 20; tuberculosis, 70; cancer, 18; apoplexy, 26; heart disease, 67; acute respiratory diseases, 73; enteritis, 14, and nephritis, 45. The total number of contagious disease cases reported for the week were 380, with 24 deaths, as compared with 358 cases and 22 deaths for the previous week.

Personal.—Dr. Edward E. Montgomery and Dr. S. Lewis Ziegler were guests of honor at a banquet given by the Sigma Chi Fraternity of the Medical Department of the University of Pennsylvania, May 4.——Dr. Horatio C. Wood delivered a lecture before the Academy of Medicine, Columbus, Ohio, April 24, on "Proprietary Therapeutics." A banquet was given in his honor after the lecture.——Dr. Charles H. Frazier addressed the York Alumni Association of the University of Pennsylvania at the annual banquet, April 27.——Dr. Albert C. Sautter sailed for Europe April 27.——Dr. Adolph Koenig of Pittsburg, president of the state association, was the guest of honor at a reception given by the Medical Club of Philadelphia, April 28.——Dr. George Y. MacCracken, who was reported last week in THE JOURNAL to have sustained a fracture of the patella, was operated on in the German Hospital for this condition.

Must Support Rich Insane.—It is estimated that over $100,000 a year will be saved by this city under the decision handed down by Judge Beitler, to the effect that the Quarter Sessions Court has the power to commit for contempt any person not complying with the order to pay $1.75 for the support of a relative in a state insane hospital. It is also stated that even a larger sum can be collected from persons well to do, who have paid nothing for relatives kept as paupers in the insane hospitals in some cases for a period of many years. The decision was based on a rule against Henry M. Tait, to show cause why an attachment should not issue for his failure to obey an order made by the court to pay $1.75 per week for the support of his wife. Judge Beitler, in his opinion, says: "Margaret M. Tait was committed to the State Hospital at Norristown in 1893. Since that time the county of Philadelphia has been paying for her maintenance at the rate of $1.75 per week. On September 24, 1904, this court made an order on the defendant that he pay the county of Philadelphia $1.75 for the maintenance of his wife. This order the defendant had never complied with. The question is, can he be attached for failure to obey the court's order, or is the city confined to suits from time to time to collect from him the money owing. The act of May 21, 1889, provides that the expense of the care and treatment of the indigent insane in the State Hospital for the Insane is hereby fixed at the uniform rate of $1.75 per week for each person charged to the respective counties, or poor districts from which the insane shall come, and the excess over this sum shall be paid by the state. It is under this act that the charge is made by the trustees of the hospital for the care and treatment of the wife of the defendant. The act of April 13, 1867, provides that if any husband shall neglect to maintain his wife it shall be lawful for any magistrate to issue his warrant for his arrest and bind him over. The court may make an order that the husband pay such sum as shall be reasonable for the support of his wife. It is not apparent why a husband whose wife is in a state hospital and for whose care the county is compelled by law to pay $1.75 should not under this act be ordered to pay at least that much for her. That the order of the court for the payment may be enforced by attachment can not be doubted. In the case before the court, the husband has been ordered to pay $1.75 for the support of his wife. He has refused. The court making the order was satisfied of his ability to pay. The evidence taken on the rule shows that he is still able to pay the sum. He is liable to be attached for his refusal to comply with the court's order. The rule is, therefore, made absolute."

RHODE ISLAND.

Gives Up Practice.—Dr. Nelson Perrin, Olneyville, Providence, has given up practice on account of ill health and has retired to his farm near Pawtucket.

State Sanatorium Appropriation.—The lower house has passed the bill establishing a state sanatorium for tuberculosis and has appropriated $48,000 for its establishment.

Appropriation for Isolation Hospital.—The common council of Providence has appropriated $175,000 for a new city hospital for contagious diseases, and $21,940 for a site for the hospital, containing more than 14 acres and located at Chalkstone and River avenues.

SOUTH CAROLINA.

Offers Site for Hospital.—John H. O'Neale has offered Greenville a site for a city hospital, outside the city limits and two miles from the center of the city.

Medical Examiners Elected.—At the meeting of the South Carolina Medical Association the following medical examiners were elected: First district, Dr. Walter P. Porcher, Charleston; third district, Dr. R. Andral Bratton, Yorkville, and fifth district, Dr. Samuel C. Baker, Sumter.

Personal.—Dr. Francis L. Frost has been made health officer of Charleston, vice Dr. J. Mercier Green.——Dr. William D. Crum has been confirmed by the senate as collector of customs at Charleston.——Dr. Pinkney V. Mikell, Columbia, has so far recovered from his recent operation for appendicitis that he has been removed from the hospital to his home.

Large Class Graduates.—The Medical College of the State of South Carolina, Charleston, held its seventy-fifth annual commencement exercises April 5. A class of 27 was graduated. Dr. Allard Memminger welcomed the assembly on behalf of the faculty and presented the report of the dean; Major Theodore G. Barker, president of the board of trustees, conferred the degrees, and Hon. M. L. Smith, Camden, delivered the address to the class.

State Association Meeting.—The South Carolina Medical Association assembled for its fifty-seventh annual convention at Greenville, April 11. The visitors were welcomed on behalf of the city of Greenville by Major Mahon, and by Dr. Thomas T. Earle on behalf of the Greenville County Medical Society. The annual address was delivered by Dr. John H. Musser, Philadelphia. The address of the president, Robert Wilson, Jr., Charleston, laid especial stress on the necessity for action against illegal practitioners throughout the state. The association decided to issue a monthly journal instead of the annual transactions heretofore published, and Drs. Robert Wilson, Jr., T. Prioleau Whaley and Charles P. Aimar, all of Charleston, were named as editors. The election of officers resulted as follows: President, Dr. Davis Furman, Greenville; vice-presidents, Drs. Stewart W. Pryor, Chester; Crown W. Torrance, Union, and David B. Frontis, Ridge Spring; secretary, Dr. T. Prioleau Whaley (re-elected); treasurer, Dr. Charles P. Aimar (re-elected), and councilors, Drs. Edward F. Parker, Charleston, first district; Theodore G. Croft, Aikin, second district; Orland B. Mayer, Newberry, third district; J. Wilkinson Jervey, Greenville, fourth district; R. Andral Bratton, Yorkville, fifth district; Frank H. McLeod, Florence, sixth district, and W. P. Moorer, Georgetown, seventh district. The association decided to meet in 1906 at Columbia on the third Wednesday in April.

TENNESSEE.

Senate Downs Osteopath Bill.—The act providing for a state board of osteopathic examiners was defeated on third reading by the senate March 29.

Fire at State University.—The recent fire at the University of Tennessee, Nashville, damaged the clinical building to the extent of about $6,500. The building will be restored in time for the opening of the next term.

Temporary Hospital.—The members of the faculty of Tennessee Medical College, Knoxville, who recently withdrew from that institution, and are having a new hospital built, have secured temporary hospital apartments in the Harris building.

Smallpox Conditions.—At the meeting of the State Board of Health, April 4, the secretary reported that during the past six months there had been reported 2,052 cases of smallpox, a reduction of 434 as compared with the previous half year. Maury County reported 321 cases, Montgomery County 183 cases, and Shelby County 173 cases.

Personal.—Dr. John W. McQuillan, Chattanooga, has been expelled from the Chattanooga and Hamilton County Medical Society on account of his connection with the O'Neil Electric Ray Institute.——Dr. James J. Neely, superintendent of the Western Hospital for the Insane, Bolivar, was fined $50 and costs for failing to obey a summons of court.

Commencements.—The University of Nashville Medical Department graduated a class of 72, March 31, at its fifty-fourth annual commencement. Dr. William G. Ewing delivered the faculty address and Chancellor James D. Porter conferred the degrees.——The Medical Department of the University of Tennessee, Nashville, held its thirtieth annual graduating exercises April 3. Dr. Paul F. Eve delivered the charge to the graduating class, which numbered 33; Adjutant-General Harvey H. Hannah delivered the address of the evening, and Dr. Brown Ayres, president of the university, conferred the degrees.——

Vanderbilt University Medical Department, Nashville, conferred degrees on a class of 35 at its annual commencement exercises, April 3. Dr. John T. Altman delivered the charge to the class, and Rev. George A. Gowen the address of the evening on "Truth Triumphant," and Chancellor J. H. Kirkland awarded the diplomas.——A class of 39 was graduated from Chattanooga Medical College, the Medical Department of Grant University, April 3, at the close of the sixteenth annual course of instruction. Dr. Henry Berlin delivered the faculty address and Dean Hooper conferred the degrees.

GENERAL.

Banquet to Dr. Osler.—A farewell banquet was given to Dr. William Osler in New York City, May 2, an account of which will appear in the next issue of THE JOURNAL.

Special Ship to International Medical Congress.—Dr. Charles W. Fassett, St. Joseph, Mo., is making arrangements to charter a first-class steamer to carry the American delegates to the International Medical Congress at Lisbon in April, 1906.

American Roentgen Ray Society.—The sixth annual meeting of this society will be held at Baltimore, September 28-30. The papers for the first day will deal with *x*-ray diagnosis, and those of the second and third days, therapeutics. There will be an evening exhibit of lantern slides which promises to be extremely interesting. Dr. Russell H. Boggs, Pittsburg, Pa., is secretary.

American Gastro-Enterological Association.—At the eighth annual meeting held at the Academy of Medicine, New York City, April 24-25, 1905, the following officers were elected for the ensuing year: President, Dr. H. W. Bettmann, Cincinnati; vice-presidents, Drs. S. W. Lambert, New York City, and John P. Sawyer, Cleveland; secretary and treasurer, Dr. Charles D. Aaron, Detroit; councilors, Drs. William G. Morgan, Washington; A. L. Benedict, Buffalo, and J. Kaufmann, New York.

National Association for the Study and Prevention of Tuberculosis.—The first annual meeting of this association will be held at the New Willard Hotel, Washington, D. C., May 18-19, 1905. The present officers of the association are: President, Dr. Edward L. Trudeau; vice-presidents, Drs. William Osler and Herman M. Biggs; treasurer, Surgeon-General George M. Sternberg; secretary, Dr. Henry Barton Jacobs, 11 Mount Vernon Place, west Baltimore.

Health Report of the Philippine Islands.—The report of the Board of Health of the Philippines for November, 1904, states that there were 666 births in Manila during that month. Of these 349 were males and 317 females, a birth rate of 36.91 per 1,000. There were 1,048 deaths during the month, of which 957 were residents and 91 transients. Infantile convulsions caused 353 deaths, the greatest number from any one cause; tuberculosis caused 102 deaths and meningitis 30. There were 96 deaths among children under 30 days of age, and 490 between 1 month and 1 year. There were no deaths during the month from either smallpox or bubonic plague.

CANADA.

Winnipeg Hospital Report.—For the week ending April 22, 279 patients were treated in the wards of the Winnipeg General Hospital, of whom 194 were men, 69 women and 16 children. There were 110 out-patients treated.

Ontario Board of Health.—At the regular quarterly meeting of the Ontario Board of Health in Toronto the past week, the report of the secretary, Dr. C. A. Hodgetts, stated that there had been 500 deaths from tuberculosis in the province of Ontario for the first quarter of 1904. Dr. Hodgetts suggested provisional treatment in dispensaries until such times as sanatoria are established fit to cope with the ravages of the plague. The report also strongly urged the disinfection of sleeping cars. At the next regular meeting, the question of the government creating a separate department of public health will be discussed.

Dr. Charles O'Reilly Resigns.—Dr. Charles O'Reilly, medical superintendent of the Toronto General Hospital for twenty-nine years and a half, has resigned, to take effect at the end of June. Dr. O'Reilly was appointed in 1876, and has built up the hospital until to-day it is the largest hospital in the Dominion of Canada, having over 400 beds. During his tenure of the office over 100,000 patients have passed through the institution, and there have been 4,000 births in the maternity branch. Several years ago he was instrumental in having established in the very heart of Toronto the emergency branch which annually attends to 2,500 emergency cases. Dr. O'Reilly will travel abroad for two or three years with his son, Dr. Breffney O'Reilly.

Ontario Hospitals Association.—The annual meeting of this organization was held in Toronto, April 12, and a deputation waited on the premier to ask for a raise of the government grant from 50 to 75 cents per diem. The total government grant to the various hospitals in Ontario amounts to $110,000. The statistics for the Ontario hospitals show that during 1904 39,223 patients were treated, as against 35,912 during 1903. The total revenue of all these hospitals in 1904 amounted to $844,881, including the government grant, which would be about 17 cents each day for each patient entitled to receive it, while the actual average cost was 89 cents. Mr. Edward Gurney, Toronto, was elected president, Dr. Charles O'Reilly, vice-president, and Dr. John Ferguson, Toronto, secretary-treasurer.

FOREIGN.

Plague in Chile.—Bubonic plague is reported to be causing many deaths in the city of Pisagua, Chile.

Belgian Congress of Professional Medicine.—The physicians of Liège are issuing invitations to a national congress to meet there in August to discuss questions affecting the material and ethical interests of the profession. The project is being greeted with much enthusiasm.

Prohibition of Absinthe in Belgium.—Our French exchanges comment with envy on the recent drastic decree passed by the legislature in Belgium which prohibits the manufacture, transportation and sale by wholesale or retail of the liqueur absinthe. The bill was passed by 127 yeas to 3 nays, 2 members not voting.

German Laryngological Association.—The first biennial meeting of this association is to be held at Heidelberg June 13. It was organized last August by the efforts of Moritz Schmidt, who convinced the various local and provincial laryngologic societies of the great benefits to be realized by combining all the laryngologists of Germany, Switzerland and Austria into a single comprehensive association. It does not conflict in any way with the aims and autonomy of the various local societies, but merely supplements them. The opening address at the approaching meeting is to be by B. Fraenkel of Berlin on "The Future of Laryngology." Dr. Avellis of Frankfurt a. M., Bockenheimer Anlage 48, is secretary. Membership dues are 3 marks or about 75 cents.

Thirty-fourth German Congress of Surgery.—This congress met at Berlin April 26 to 29, the principal attraction being Bier's application of congestion hyperemia to the treatment of acute inflammations, as already described in these columns on page 1075. He gave daily demonstrations of its action at von Bergmann's clinic which was thronged by visiting physicians and surgeons. Appendicitis was, of course, one of the leading topics, followed by addresses and discussions on "Functional Diagnosis of the Kidneys" and "Kidney Extirpation," "Postoperative Pneumonia" and "Treatment of Fractured Patella." Krönlein's orbital resection was also demonstrated, and Killian's tracheo-bronchoscopy. Professor R. U. Krönlein of Zurich was the president of the congress.

Fourth German Congress of Orthopedic Surgery.—This congress immediately preceded the congress of surgery mentioned elsewhere. Over 40 addresses or communications by prominent orthopedists were on the program, and a number of others were presented later. Spitzy described his later experiences with plastic operations on nerves, and Werndorff his new method of diagnosis of joint affections. Drehmann of Breslau discussed the deformities that follow joint affections in early infancy and Bum of Vienna the bloodless treatment of ankylosis. The principal theme discussed was the "Mechanics of Scoliosis," the main addresses being by Lovett of Boston, Schulthess of Zurich and Schanz of Dresden, with further communications on "Hysteric Scoliosis" by Hoborka and Muskat. Stein of Wiesbaden described the technic of photographic measurement of scoliosis.

A Physician Appointed Cabinet Minister in Spain.—Our Madrid exchange, the *Siglo Medico*, appears in gala dress in its issue for April 15. The rejoicing is on account of the fact that for the first time in thirty years a physician has been appointed a member of the national cabinet. More than this, the physician in question is Don Carlos M. Cortezo, one of the three physicians who own, edit and publish the *Siglo Medico*. Dr. Cortezo was appointed chief of the public health department six years ago, and for the last year or so has been president of the International Association of the Medical Press. April 8 he was appointed "minister of public instruction and fine arts," and the entire medical profession in Spain is delighted at this distinction conferred on one of its members. The *Siglo Medico*, by the way, suggested recently a novel mode

of congratulating Ramon y Cajal on his recent honors. It proposed that on a given date, May 1, every physician throughout Spain should send a postal card to the illustrious histologist, with a few brief words of appreciation. May 1 was selected, as it is a kind of "labor day" in Spain, and it is well known that Cajal works far more than the regulation eight hours a day.

Twenty-second German Congress of Internal Medicine.—None of our German exchanges has yet commenced its report of this congress, which was held at Wiesbaden, April 12 to 15, but the Paris *Semaine Médicale* for April 19 devotes thirteen columns to a full account of the proceedings. The principal topic was "Heredity," with addresses by Ziegler of Jena and Martius of Rostock, and reports of interesting experimental work by others. Ziegler described the biologic importance of the fact of fecundation and the progress realized of late years in our knowledge of the chromosomes which are of primordial importance for heredity. The chromosomes always form groups of four, two derived from the father and two from the mother. Martius emphasized the necessity of discriminating between what is inherited and what is congenital. The entire heritage of a new individual is contained materially and virtually in the two germinative cells which blend in fecundation. When they have blended the fact of heredity is complete, and all that develops afterwards is due to external causes. The rôle of the father is terminated. Diseases can not be inherited, only the predisposition to them, and there is no such thing, he stated, as heredity of acquired morbid properties. The recent researches on immunity do not conflict with this view, as they establish that the antitoxins of the mother pass to the fetus by way of the placental circulation, and that there can be no question of their transmission by way of real heredity. The clinic forces us to accept an inherited individual constitutional factor as a point of lesser resistance. This morbid "determinant" may combine with other morbid determinants or may be compensated by others. Study of biology reveals always a vast current of healthy, vigorous life traversing humanity. The weak die off, but nature keeps the general standard of the race high, and we may well be optimists in regard to heredity. Lorand of Carlsbad remarked that heredity is influenced by the condition of the thyroid gland more than is generally recognized. The defective development of the offspring of syphilitic and malarial parents is due more to the inherited state of the thyroid than to anything else. Several speakers ascribed great importance to the "paralytic thorax" as producing conditions which invite tuberculosis. The angle of the manubrium with the body of the sternum is abnormally acute in this condition. Turban has noted in 100 families that when tuberculosis attacked the members it always selected the lung on the same side, confirming the assumption of a point of less resistance. Neuburger of Frankfurt stated that he had the clinical histories of a number of families for eighty years and more, as attended by his father-in-law and himself through four generations. His observation has convinced him that the predisposition to tuberculosis is inherited and not acquired. It may not manifest itself until late in life. He knows families in which all the members became consumptive after 60. The heredity of cancer is even more striking. Chronic nephritis, coronary arteriosclerosis and diabetes are likewise hereditary. He knows of entire families affected with exophthalmic goiter. A number of speakers reported symptomatic improvement and cure of leukemia under radiotherapy, but no one was able to relate a single permanent cure.

LONDON LETTER.

A Case of Intestinal Anthrax.

An example of the very rare intestinal form of anthrax, which has never previously been recorded in Great Britain, has been observed in Glasgow. A lead worker died from intestinal anthrax and careful inquiry was made as to the source of infection. His occupation was the grinding of white lead in refined linseed oil. In his work he came into contact with the following substances, which under varying conditions have been associated with outbreaks of anthrax: linseed oil, spent oak bark, tallow used for lubricating a machine, and waste with which he wiped his hands. The oil was excluded because it was refined and had, therefore, been exposed for hours to a high temperature. As to the spent bark, cases of anthrax have occurred in association with tan works, but they have arisen from hides before being submitted to the liming process. As the liming destroys the anthrax infection the spent bark could not be held responsible. The tallow had been refined at such a temperature as to make it free from anthrax. The waste was cotton and jute waste, which is not associated with anthrax. Moreover, no case had occurred at the works from which these four substances were derived. In common with others he had partaken of part of a pie and a steak, and the meat was traced to possible sources of origin, but no definite anthrax infection could be found. The anthrax bacillus, but not its spores, is readily destroyed by the gastric juice. The conclusion was reached that the man must have partaken of a portion of infected meat containing the spores, which the others escaped because they ate portions which did not happen to contain spores.

The Confederation of the Medical Societies of London.

The proposal to confederate the medical societies of London, which has been reported previously in THE JOURNAL, is making considerable progress. Sir William Church, president of the Royal College of Physicians, presided at a large and influential meeting, at which the various societies were represented by their presidents. He gave a short historical survey of the various attempts which had been unsuccessfully made since 1808 to unite the societies. Those who are now promoting the union propose that a new central body which Sir William Church termed "The Royal Society of Medicine," should be established and that all the existing societies should be regarded as subdivisions of it. The idea is that the existing societies should not lose their individuality, but should be embraced and covered by the wing of the Royal Society of Medicine. Medicine at the present day is necessarily split up into a number of branches, which are in danger of becoming dissociated from general medicine. Anything that tends to keep up the connection between general medicine and the special branches is to be encouraged. It is proposed that there shall be two grades in the proposed society: fellows and associates. The fellows will join the Royal Society of Medicine on certain financial terms, which will give them the right of attending all the meetings of the included societies. The associates will consist of those who prefer to be members of one or more sections of the society and have certain advantages and privileges by belonging to the Royal Society of Medicine, such as the use of the library and all the rooms of the society. The separate sections will receive and consider their own communications as each thinks proper, and will publish monthly the papers, while the parent society will, with a strong publication committee, select from these communications and publish the results as the "Transactions of the Royal Society of Medicine." The proposal was warmly supported by Sir Frederick Treves, Sir Thomas Smith, Mr. Langton, Dr. Theodore Williams, Sir Douglas Powell and Sir William Broadbent. The latter proposed the following resolution, which was carried unanimously: "That the councils of the Medical, Royal Medical and Chirurgical, Pathological, and Clinical societies be invited to form, with the president of the Royal College of Physicians, the president of the Royal College of Surgeons and five others, a committee which shall make such inquiries as may be necessary and submit a scheme to the various societies for their consideration." He suggested that the Medical and Royal Medical and Chirurgical societies, as the oldest societies and as having property, should have two representatives each on the committee, and the Clinical, Pathological, Obstetrical and Epidemiological societies one each. With regard to the local medical societies in the outlying parts of the metropolis he thought that they ought to be invited to cooperate, but that it would be a great misfortune to interfere with their efficiency. There is more in the idea than amalgamation: there is a new creation, which will raise medicine to a higher plane.

Pharmacology

Not With Us.

We have printed abstracts of letters received from some of the leading manufacturing pharmaceutical houses which favored the movement recently undertaken to separate the good preparations, as far as is possible, from the fraudulent and secret nostrums with which physicians are flooded and which they are expected to prescribe for the sick under their care. Under the circumstances, we think it only fair to give the other side. We are especially constrained to give physicians a chance to read what Battle & Co. have to say, because they have sent the correspondence to various manufacturing pharmaceutical firms, and our readers should have the same favor shown them. With the correspondence they say: "We commend the above correspondence to your

attention as showing the position we take in regard to the Council on Pharmacy and Chemistry of the A. M. A. We would like to hear any comments you have to make." The correspondence is as follows:

AMERICAN MEDICAL ASSOCIATION.
COUNCIL ON PHARMACY AND CHEMISTRY.

CHICAGO, April 22, 1905.

MESSRS. BATTLE & CO., St. Louis, Mo.

GENTLEMEN:—The Council on Pharmacy and Chemistry is now ready to take up "Bromidia," provided you wish to submit it to that body. We take it for granted that you received the announcement which we sent on February 28, and consequently know the functions of this council.

If you desire to submit the preparation, will you kindly forward five original packages, and also any information you may desire to submit to the council for its guidance? By referring to the tentative rules, as set forth in the announcement, you will readily see the scope of the information desired. If you send printed matter, kindly supply us with fifteen sets of each.

We shall be pleased to hear from you at your earliest convenience.

Very truly yours,
GEORGE H. SIMMONS, Chairman.

ST. LOUIS, April 25, 1905.

DR. GEORGE H. SIMMONS, Chairman,
103 Dearborn Ave., Chicago, Ill.

DEAR SIR:—Yours of the 22d instant received and contents noted. In answer would say that we read very carefully the circular sent by the Council of Pharmacy and Chemistry, February 28. In regard to that and your request, will say: In the northern district of New York, United States Circuit Court, held in the court house at Utica, N. Y., May 3, 1887, Judge Alfred C. Coxe granted a temporary injunction restraining Byron Fenner of Westfield, N. Y., to "desist from printing, publishing or circulating in any book or formula hereafter to be issued by the defendant, his agents, etc., the word Bromidia or Bromidio in connection with the receipt now appearing in Fenner's Formulary, etc., etc." This injunction was made permanent June 7, 1887, the same judge presiding.

We don't recognize the right of any man or set of men to interfere with our property. We do not propose to submit any of our preparations to the so-called Council of Pharmacy and Chemistry. Furthermore, if we learn that the said Council of Pharmacy and Chemistry attempts to incorporate any of our preparations in the book referred to, we will ask for an injunction restraining any interference with our property.

Yours respectfully,
BATTLE & CO., Chemists' Corporation.
C. A. BATTLE, President.

We wish to assure Messrs. Battle and Company that it will not be necessary for them, under the circumstances, to get out an injunction to prevent the council from incorporating Bromidia in the proposed book. Indeed, the underlying principle on which the council is working is that until there is something more than the unsatisfying statement of the manufacturer concerning the composition of his "property," physicians ought not to "interfere" with that "property" by using it on an innocent public.

Some Misconceptions Set Right.

The Council on Pharmacy and Chemistry has asked for criticisms of its plan. We may naturally reserve the right to criticise the criticisms. One that has been made seems to us particularly fallacious. We refer to the comments of a local medical journal which assert that the defects in the plan are as follows:

First, that the reform is made dependent on the voluntary co-operation of the manufacturers; second, that it proceeds on the novel assumption that the way to distinguish and punish the guilty is to compile a list of the innocent; third, that it would not vest authority in a legally irresponsible body which can be safely and effectively exercised only by the government.

To effectually answer the first point it is only necessary to call attention to the primary purpose of this council. This council is an advisory body to determine what articles may be ethically advertised in THE JOURNAL A. M. A. It is certainly optional with the manufacturers, etc., whether or not they shall ask to advertise in the columns of THE JOURNAL. It, therefore, certainly must be optional with them whether or not they come up to the requirements laid down by THE JOURNAL. As a separate matter, but as a corollary, it is proposed to put the results of the decisions of this council in a book in order that the results may be accessible to others. It was taken for granted that interest would attach to the results of the work of this council because of the wide interest in the subject and because of the high standing of the members of the council.

Recommending the publication, not of a list of the innocent, but of a list of the guilty, we contend is contrary to the usual experience. In choosing foods, man selects the harmless substances and uses them. It is true that he condemns the deleterious substances when he finds them, but he does not hunt for them. The same is true in medicine. When a remedy is found to be unsuited for a certain condition the search is kept up for one which is suitable. The work of the council is primarily to place its approval on the products which it is safe for the profession to use and which, therefore, may be mentioned in THE JOURNAL'S advertising pages. It is true that as harmful and fraudulent preparations are brought to its notice they will be exposed, but that is a secondary matter. The third objection is that the method is wrong; that the proper course would be to secure government legislation against products which have been analyzed and proved to be objectionable. The throttling of the pure food bill in the United States Congress—in spite of the crying necessity for a law of this kind and in spite of the pronounced agitation in its favor throughout the country—is sufficient answer to this proposition. It may not be out of place to say that the anxiety shown by some papers lest the council be swamped with damage suits is uncalled for. When the council has anything to say in condemnation of any preparation it will be because of absolute knowledge of what is said, and the blow will be from the shoulder.

The Use of Proprietary Medicines in Great Britain.

In a recent paper presented to the Western Chemists' Association,[1] London, Eng., Mr. Peter MacEwan gave a summary of an analytical study of upward of 1,700 prescriptions, sent to him by chemists from various cities and towns in the United Kingdom. The investigation itself had been undertaken for the purpose of ascertaining to what extent proprietary medicines were being prescribed by medical men in Great Britain. The resulting figures ranged from 2 per cent. in Newcastle-on-Tyne, to more than 20 per cent. in some of the larger cities. Taking all of the replies the total would appear to indicate that in about 10 per cent. of the prescriptions written in Great Britain, proprietary medicines are included among the ingredients. These resulting figures, particularly when compared to the figures recently published in this country by Dr. M. Clayton Thrush,[2] reflect credit on the practices of our British fellow practitioners, and would suggest the conclusion that the average medical man in Great Britain recognizes the folly of using medicinal preparations about which he knows little or nothing and is content to use official or pharmacopeial medicines. This conclusion is further justified by the comments of some of the pharmacists who contributed prescriptions. These comments and opinions would appear to indicate that British physicians are prescribing proprietary preparations much less than is the case on this side of the water.

Unpaid Peddlers of Secret Nostrums.

Evidently there must be a considerable number of physicians in the United States who sell themselves cheaply. Last week we printed in this department a description of a scheme that a St. Louis chemical company had for getting the doctors to work for them for very small pay. This week we have to record another St. Louis firm in the same delightful business. This scheme comes in the form of a triple postal card arrangement, on which the following liberal offer is made:

Dear Doctor: In order to give you an opportunity to further test the properties of our MANOLA TONIC, we make you the following liberal proposition: Fill out the attached cards Nos. 1 and 2, mail No. 1 to US and hand Nos. 2 and 3 TO YOUR DRUGGIST. Upon the receipt of the order for 1 dozen MANOLA TONIC from your druggist we will send with his order 3 full size bottles of MANOLA TONIC free of charge to YOU.

Yours truly,
THE MANOLA COMPANY.

Card No. 1 is directed to the company, and the doctor is to fill in the name of his druggist, sign his name and put on the stamp. (The company ought to be willing to furnish the stamp.) On this card is this statement:

Gentlemen:—I have this day accepted your offer through Mr. ———— Druggist.

Card No. 2 is as follows:

Mr. ————, Druggist:
Please order of the Manola Company, St. Louis, Mo., 1 dozen MANOLA TONIC, all of which I agree to prescribe in my prac-

1. Chemist and Druggist, London, Eng., April 1, 1905.
2. THE JOURNAL A. M. A., Jan. 4, 1905.

tice. By filling out the attached card No. 3 and forwarding it to the above company, they will forward me, with your order, 3 full-size bottles MANOLA TONIC free for clinical purposes.

Yours truly, ——————M.D.

In this instance the poor doctor either has to put this card in an envelope and put on a two-cent stamp, or carry it to the druggist himself. As he will probably be a cheap doctor in any event, he will no doubt save the two cents.

Card No. 3 is as follows:

Date ——————19

MANOLA COMPANY, St. Louis.

Gentlemen: Please ship (me us), as per your offer, 1 dozen MANOLA TONIC at $8.50 per dozen. ¼ dozen MANOLA TONIC free, for Dr. ——————.

(Signed) ——————Druggist.

Ship through my jobber.

Here we have the doctor not only used as an unpaid peddler for a secret remedy, but also as a club to make the druggist fill up his shelves with the stuff. Of course, the three bottles the doctor gets for his labor are to be given to his patients, who will thus become acquainted with what the preparation is good for, and will then buy it direct.

Certainly, it can not get very much worse, unless the nostrum manufacturers get the doctor to go on the street and peddle their stuff on a percentage.

FURTHER COMMENTS QUOTED.

We submit below some expressions of opinion from various publications which discuss the general subject of secret nostrums and the plan of the Council on Pharmacy and Chemistry:

MEDICAL TIMES (April): "This is indeed a subject vital to every physician who is conscious of his own dignity of character; who is anxious to resent every factor—and how many such there are!—tending to degrade the profession with which he has become affiliated; who, while being of all humanitarians the most self-abnegating, is not ready to become a cat'spaw by means of which better business men than he shall accumulate their millions; and who is sufficiently scientific to realize that he can not in all conscience prescribe for a patient's malady a remedy in the nature of which he does not and is not permitted to know. . . . In one year $62,000,000 has been expended on patent medicines in the United States, enough to give every practitioner in the country a yearly income of $2,000. How could such results be brought about if many physicians did not ingenuously help by their laudatory office conversations with the agents of these medical firms and by their complacent distribution of samples to patients? In the face of such facts as these all talk of love of humankind, altruism, self-abnegation and the like, becomes cheap and nauseating. There are many physicians who get from the subtly deriding world in return for their labor and their sweat, praise of this sort—and little else. It appears to us that all such buncombe should give place to homely common sense. It is more dignified for the medical man to earn money for himself and his own, rather than for others; and to require a just return for his work. All this is by way of introduction to the excellent proposals made by THE JOURNAL."

WASHINGTON MEDICAL ANNALS (March): "It will no doubt be conceded that the advertising pages of a medical journal should receive the same careful editorial scrutiny that is given to the subject matter proper of the journal itself. . . . There are, of course, many advertisements as to the fitness or propriety of which there can be no question. The chief difficulty has been with regard to patented and proprietary pharmaceutical products. Talk as we may of the ethics of the question, a large proportion of the profession has given evidence that it will prescribe what it chooses, regardless of these considerations. This phase of the question is not to be summarily dismissed. Results we must have, and the man who is in earnest will get them by whatever means offered. It is certainly unfortunate that any method or means for the relief of human suffering should be restricted by mere commercial greed. On the other hand, it must be admitted that not every preparation or combination of healing agencies can be compounded extemporaneously at the nearest pharmacy and in the best possible form for administration. It is worth something to be able to rely with confidence on the means we are using, and the laborer who has given us confidence is worthy of his hire. . . . We may expect much of interest and profit from the work of this council; its personnel bespeaks the confidence of the whole profession."

Correspondence

Conservation of Blood in Operations on Anemic Patients.

MINNEAPOLIS, MAY 1, 1905.

To the Editor:—In performing a perineorrhaphy on a very anemic woman recently. I used a one to one thousand solution of sterilized adrenalin chlorid in the vagina and a practically bloodless operation was performed. The mucous membrane of the vagina blanched almost immediately and the anesthetizer reported a marked improvement in the heart's action. Healing occurred without any drawback. Have any similar cases been reported? If so, are there any contra-indications?

LESTER W. DAY.

A Reminder of "Auld Lang Syne."

NEW YORK, April 25, 1905.

To the Editor:—Through the courtesy of Mr. James Douglas of New York I have a copy of the papers relating to the apprenticeship of his father when he became a student of medicine. Notwithstanding that this was made in the early part of the last century, the paper is so curiously quaint and interesting that I send a copy of it to you for publication in THE JOURNAL. Few in the present day realize the great changes that have taken place in less than one hundred years.

THOMAS DARLINGTON, Commissioner of Health.

"THIS INDENTURE Made the third Day of October in the year of our Lord one thousand eight hundred and thirteen between The Reverend George Douglas of Penrith in the county of Cumberland and James Douglas of the same place the son of the same George Douglas of the one part and Thomas Law of the same place surgeon and apothecary of the other part Witnesseth That the said James Douglas of his own free Will and by and with the License and consent of the said George Douglas his natural and lawful father and guardian (testified by his being a party to and signing and sealing these presents) Hath put placed and bound himself Apprentice to the same Thomas Law to learn and be taught the trade art mystery or business of a surgeon apothecary and man-midwife which he the said Thomas Law now practices and to continue with and serve him as an apprentice from the day of the date of these presents for and during and unto the full end and term of five years from thence next ensuing and fully to be completed and ended And the said George Douglas Doth for himself his Heirs Executors and Administrators and for each and every of them and for the said James Douglas his son covenant promise and agree to and the said Thomas Law his executors administrators and assigns by these presents in manner and form following (that is to say) That he the said James Douglas shall and will diligently and faithfully serve him the said Thomas Law his secrets keep his lawful commands do and perform Damage to his said Master he shall not do nor willingly permit to be done by others the goods of his said Master he shall not waste nor lend them without his consent to any he shall neither buy nor sell without his Master's leave Taverns Inns or Alehouses he shall not frequent At cards Dice or any unlawful games he shall not play fornication commit nor Matrimony contract nor from the service of his said Master Day or Night shall absent himself but in all things as an honest and faithful Apprentice shall and will demeen and behave himself towards his said Master and all his during all the said term of five years Also That he the said George Douglas shall and will during all the said term of five years provide and allow for the said James Douglas his son sufficient and proper meat Drink Wearing apparel Washing and Lodging And the said Thomas Law in consideration of the premises and for and in consideration of the sum of five shillings of good and lawful money of the said Kingdom Great Britain and Ireland current in England in hand well and truly paid by the said George Douglas at or before the signing and sealing of these presents The receipt Whereof is hereby acknowledged Doth for himself his heirs Executors and Administrators and for each and every of them covenant and agree and

promise to and with the said George Douglas and James Douglas That he the said Thomas Law according to the best of his power skill and knowledge shall and will instruct or cause to be taught and instructed the said James Douglas in the said trade Art Mystery and business of a surgeon Apothecary and Man-Midwife and in all things Whatsoever incident and belonging thereto in such manner as he the said Thomas Law now or at any time hereafter during the said term of five years shall use practice teach or deal in the same In Witness Whereof the said parties to these presents have hereunto set their hands and seals the day and year first above Written.

Signed sealed and delivered (being first duly stamped).
George Douglas.
James Douglas.
Thos. Law.

In the presence of
Henry Law.
W. Jackson.

Penrith, Sept. 1st, 1818.

I hereby certify that James Douglas has faithfully completed his Apprenticeship to this day and that I give him the remainder of his service that he may visit his Father and Friends. Thos. Law."

Association News

Details of the Alaska Trip.

The Committee of Arrangements has arranged with the Alaska Steamship Company to handle the American Medical Association excursion to Alaska, and makes the following announcement: A round trip rate of $60.00 from Seattle has been obtained and the steamer *Jefferson*, a splendid vessel, designed and built especially for this route, will be used. She has spacious social halls and decks and every modern improvement to make the voyager comfortable. The cuisine is equal to that of the best first-class hotels. This trip is without equal anywhere. It is not an ocean trip in the usual sense, with its many unpleasant accompaniments of seasickness and stormy weather; but rather like a river trip amid a thousand islands and underneath beetling cliffs and snow-capped mountains, with just an occasional dash of old ocean as the vessel crosses some wider strait.

Without specifying in particular the various ports of call on the trip it can be said that all the points of interest on the Alaska route will be touched at between Seattle and Sitka. All applicants for reservations for the trip will be supplied with literature by the steamship company. The *Jefferson* will leave Seattle at 9 a. m. July 17, and returning will discharge at Tacoma July 28, thus consuming eleven days in the trip. She will touch at Vancouver on the return trip and if any of the excursionists desire to visit Victoria, they will be given tickets from Vancouver by way of Victoria to Seattle on the company's regular steamers. All intending to make this excursion are requested to send in their applications at once to the Committee of Arrangements, as the number already applying suggests the possibility that they may have to engage a second steamer.

The following quotation from the steamship company's "A Trip to Wonderful Alaska" may be of use in the selection of clothing for the trip. "Making preparations for a tour of Southeastern Alaska does not mean that one must provide himself with thicksoled shoes and fur robes. Pack your trunk with summer clothing, wear a Panama hat, and with a light overcoat as a protection in the cool evenings you are ready to depart on the voyage north."

The committee would also call attention to the Honolulu, Yokahama, and Hong Kong trips; they have had several applications, but not yet enough (20) to secure the reduced rates.

K. A. J. MACKENZIE,
Chairman of the Committee of Arrangements.

Missouri Valley Special to Portland.

Arrangements have been made for a special train to accommodate the physicians of Kansas City, St. Joseph and vicinity. It will leave Kansas City June 29, 6:10 p. m.; St. Joseph, 8:25 p. m.; Omaha, 11:30 p. m., and Lincoln, 1:20 a. m.; will arrive in Yellowstone Park Saturday morning, July 1, remaining there about a week, and in Portland Sunday evening, July 9. Another train will leave Kansas City, St. Joseph, Omaha, etc., on the evening of July 5, for those who wish to go direct to Portland. Stopovers in Seattle, Tacoma and other points will be allowed. Further particulars may be obtained from Dr. Charles Wood Fassett, St. Joseph, Mo.

Marriages

JAY C. KNIPE, M.D., to Miss Ruth D. Krauss, both of Philadelphia, April 24.

JESSE L. MAHAFFEY, M.D., to Miss Alice Fogg, both of Camden, N. J., April 26.

ADEN C. HART, M.D., to Mrs. Allie H. Chase, both of Sacramento, Cal., April 18.

DAVID C. BURKS, M.D., to Miss Eudora Belle Mallory, at Petersburg, Va., April 26.

ROBERT CONOVER WILSON, M.D., to Miss Louise Crepin Hoyt, both of Chicago, April 26.

ALBERT F. HENNING, M.D., Chicago, to Miss Mary B. Meager, of St. Paul, Minn., April 26.

GUSTAV SCHWYZER, M.D., to Miss Mary Robinson, both of Minneapolis, Minn., April 20.

PAUL H. ELLIS, M.D., Omaha, Neb., to Miss Lillian Covert of Council Bluffs, Iowa, April 21.

JESSE H. CHILES, M.D., Brooks, Iowa, to Miss Elzene A. Hall of Villisca, Iowa, April 13.

WILLIAM STURGIS THOMAS, M.D., to Miss Emma Rheinfrank, both of New York, April 25.

HARRY PICKETT TAYLOR, M.D., to Miss Mary Etta Smith, both of Flemingsburg, Ky., April 19.

PAUL MONROE PILCHER, M.D., New York City, to Miss Mary Finley of Montclair, N. J., April 26.

PAUL BARTHALOW, M.D., New York City, to Miss Anna Lewis Brice of Philadelphia, April 25.

ROGER H. DENNETT, M.D., Adamsville, R. I., to Miss Agema V. Wheeler, of Brooklyn, N. Y., April 12.

ABRAM F. LUMPKIN, M.D., Amarillo, Texas, to Miss Maude Roland Gunn of Blossom, Texas, April 19.

WILLIAM J. BLALOCK, M.D., Atlanta, Ga., to Miss Karoline Louise Kiene of Dubuque, Iowa, April 24.

JAMES MARVIN SALMON, M.D., Ashland, Ky., to Miss Charlotte Susan Seem of Bangor, Pa., April 27.

OLIN ROSCOE BATES, M.D., to Miss Flora Beals, both of Climax, Mich., at Battle Creek, Mich., April 19.

THOMAS JOSEPH STEWART, M.D., Cherry Valley, Ark., to Miss Ella Gilliland Jordan of St. Louis, Mo.

SAMUEL MYERS DEAL, M.D., Columbia, S. C., to Miss Mary Littell Davis, at Indianapolis, Ind., April 19.

WILLIAM J. MCCAUSLAND, M.D., South Quincy, Mass., to Miss Gilliland of Tewkesbury, Mass., April 12.

GEORGE W. FITHIAN, M.D., Perth Amboy, N. J., to Miss Mary W. Stathem of Cedarville, N. J., April 19.

GEORGE REVIS, M.D., La Fayette, Ind., to Mrs. Mary Hudlow of Fort Worth, Texas, at Indianapolis, April 19.

THEODORE F. HEAVENRICH, M.D., to Miss Katherine Forrest Ballentine, both of Port Huron, Mich., April 18.

WILLIAM FRANKLIN DRIVER, M.D., Broadway, Va., to Miss Ida Valentine Trice of Flanagan's Mills, Va., April 19.

Deaths

Charles Smart, C.M., M.D., University of Aberdeen, Scotland, 1862, ranking assistant surgeon general of the United States Army, died in St. Augustine, Fla., April 23, after a long illness from cerebral hemorrhage, aged 64. Colonel Smart was a native of Scotland, came to New York immediately on his graduation, and at once entered the military service as assistant surgeon of the Sixty-third New York Infantry in the Civil War, was mustered out of the volunteer service April 15, 1864, became lieutenant and assistant surgeon in the same year; was made captain and assistant surgeon in 1866; was promoted to major and surgeon in 1882; to lieutenant colonel and deputy surgeon general in 1897, and

received his final promotion to colonel and assistant surgeon general in 1901. After the war he served at many different points in the United Stated until he came to Washington in 1879 for duty with the National Board of Health, on which duty he continued until 1883. He was sent to Memphis, Tenn., and other fever-stricken cities in the South to investigate the water supplies, and conducted many other important investigations for the board. From 1883 to 1902 he was on duty in the office of the Surgeon General of the Army. During this period of service he compiled and edited the third medical volume of the Medical and Surgical History of the War of the Rebellion, and subsequently was disbursing officer of the Medical Department in Washington, and in charge of the Sanitary Division of the office. He was a member of the faculty of the Army Medical School from its organization in 1893 until his departure for the Philippines, and was its president subsequent to July 2, 1902. He served as a member of various boards, including examining boards for admission of candidates to the Medical Corps, board for preparation of hospital corps drill, and for Manual for the Medical Department, and board on emergency rations. He compiled and published a "Handbook for the Hospital Corps," which is still in use as a textbook on the subject. He represented the Medical Department of the Army at the meetings of the American Public Health Association in 1892, 1894, 1896 and 1897, and for many years was chairman of its committee on pollution of water supplies. In connection with the Act of March, 1887, organizing the hospital corps, he arranged for the system of examination for the appointment of hospital stewards and acting hospital stewards. In 1890 he was president of a board convened at Fort Leavenworth, Kansas, which provided a system of drill regulations and first-aid lessons for the hospital corps. In 1889 he organized the present identification system for deserters by means of outline figure cards. During the Spanish-American War he did important work inspecting the large camps and camp sites, notably those at Alger, Meade and Montauk. Besides his Handbook for the Hospital Corps of the U. S. Army and State Military Forces and many valuable papers in American Health Reports, General Smart was a frequent contributor to medical literature, especially to the Encyclopedic Medical Works. In the Reference Handbook of the Medical Sciences he wrote the articles on Air, Malaria, Miasm, Water, Quarantines, and Army Field Hospital Organization. General Smart had but recently returned from the Philippines, where he had been serving as chief surgeon of the Division since Nov. 30, 1902, a stroke of apoplexy having necessitated his being returned to this country, and subsequently placed on the retired list, with rank of brigadier general. General Smart was a member of the American Medical Association and of the Association of Military Surgeons of the United States, and was for many years Washington correspondent of, and an editorial contributor to, THE JOURNAL. He combined with brilliant scientific attainments a great capacity for hard work, together with an unfailing loyalty to duty. His death is a great loss to his corps, and to the medical profession in general.

William Baggs Ulrich, M.D. Philadelphia College of Medicine and Surgery, 1850, a member of the American Medical Association, one of the oldest practitioners of Chester, Pa., sometime president of the Medical Society of the State of Pennsylvania, and of the Delaware County Medical Society; surgeon of the Philadelphia, Wilmington and Baltimore Railroad; formerly chief of staff of Chester Hospital, died at his home in Chester, April 24, from complications following influenza, after an illness of three weeks, aged 83.

Charles Henry Hertzog, M.D. Western Pennsylvania Medical College, Pittsburg, Pa., 1896, a member of the American Medical Association; Medical Society of the State of Pennsylvania; Allegheny County Medical Society and the South Side Medical Society, Pittsburg; one of the incorporators of and a member of the surgical staff of St. Joseph's Hospital, and a director and member of the staff of the South Side Hospital, died at his home in Pittsburg, April 18, from scarlet fever, aged 34.

Robert William Harper, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1852, formerly of Tallahatchie County, Miss., surgeon in the Confederate Army throughout the Civil War, and for many years a practitioner of Minter City, Miss., died at the home of his daughter in Memphis, Tenn., March 30, 1905, from organic heart disease, after an illness of six weeks, aged 76.

Franklin H. Allen, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1877, a member of the American Medical Association, Massachusetts Medical Society, and Essex North District Medical Society, a prominent physician, and at one time an alderman of Haverhill, Mass., died at his home in that city, April 23, from diabetes after a long illness, aged 49.

Leonidas S. Buchard, M. D. University of California Medical Department, San Francisco, 1882, a member of the American Medical Association, and a prominent practitioner of Oakland, Cal., died at his home in that city, April 23, from typhoid fever, after an illness of two weeks, aged 50. The Alameda County Medical Association attended the funeral in a body.

Isaac Newton Gard, M.D. Medical College of Ohio, Cincinnati, 1834, organizer and for many years president of the first medical Society in Darke County, Ohio; a member of the state legislature in 1841; for 16 years one of the trustees of the Dayton State Hospital; the oldest resident of Greenville, died at his home in that city, April 24, from uremia, aged 94.

Gideon A. Weed, M.D., Rush Medical College, Chicago, 1870, twice mayor of Seattle, Wash., for ten years a regent of the University of Washington; and organizer and first president of the King County Medical Society and one of the organizers of the Washington State Medical Association, died at Berkeley, Cal., April 22, after many years of invalidism, aged 72.

William M. Edwards, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1884, superintendent of the Michigan Asylum for the Insane, Kalamazoo for 14 years; a prominent alienist; died at the University Hospital, Ann Arbor, April 26, from chronic valvular heart disease, after an illness of more than a month, aged 48.

Alexander Taliaferro Nelson, M.D. Medical Department of the Columbian University, Washington, D. C., assistant physician at the Western State Hospital, Staunton, Va., a young man of fine promise, was accidentally shot and killed in Covington, Va., April 19, aged 32. He was a member of the Medical Society of Virginia.

Walter Haigh Drane, M.D. New York University, New York City, 1854, surgeon of the Twenty-Seventh Georgia Infantry C.S.A., in the Civil War, a member of the Confederate Veterans Medical Association, died at his home in Batesville, Miss., March 28, from heart disease, after an illness of two years, aged 73.

William Henry Johnson, M.D. Toronto University Medical Faculty, 1873, of Fergus, Ont., surgeon-lieutenant colonel in the Ontario Volunteers, councilor and reve and member of the county council, died at the home of his brother in Eramosa, Ont., April 18, after an illness of four months, aged 54.

Hiram Barber, M.D. Albany (N. Y.) Medical College, 1847; member of the legislature in 1848; some-time collector of internal revenue for the Twelfth District of Illinois; from 1880 to 1891 surgeon at the state penitentiary, Sing Sing, N. Y., died at his home in Ossining, N. Y., April 24, aged 85.

William B. Beach, M.D. University of Maryland School of Medicine, Baltimore, 1875, for many years postmaster of Eatontown, N. J., and a member of the board of education, died at his home in Long Branch, N. J., from cerebral hemorrhage, after a long illness, April 19, aged 54.

John H. Hinton, M.D. College of Physicians and Surgeons in the City of New York, 1852, a member of the New York Academy of Medicine and the New York Pathological Society, died at his home in New York City from dropsy, April 26, after an illness of several weeks, aged 78.

Anthony L. Brown, M.D. Howard University Medical Department, Washington, D. C., 1894, of Springfield, Mass., for three years a member of the local board of health, died at the Springfield Hospital, April 22, from pleuro-pneumonia, after an illness of five days, aged 42.

John Magnus O'Brien, M.D. University of Maryland School of Medicine, Baltimore, 1854, who retired from practice in 1865, died at the home of his son in Danville, Va., March 5, from gastritis and senile debility, after an illness of two or three weeks, aged 89.

Frederick Jacob Delker, M.D., one of the first physicians to use embalming fluid; connected for many years with the coroner's office, died in Philadelphia, February 14, from septicemia contracted in embalming, after an illness of nearly seven years, aged 68.

William T. Miracle, M.D. University of the State of Oregon, Medical Department, Portland, 1896, a member of the American Medical Association, of Richland, Ore., died at McPherson's Hot Springs, on Snake River, Ore., April 14, after a long illness.

Joseph Sill, M.D. New York University, New York City, 1847, said to have been the oldest physician in Kalamazoo, died at his home in that city, April 23, after an illness of several years following an injury to the hip, aged 83.

Robert Amory Scott, M.D. Long Island College Hospital, Brooklyn, 1882, a member of Harrison County Medical Society,

died at his home in Richmond, Ohio, April 9, after an illness of two years from arteriosclerosis, aged 49.

John M. Zarecor, M.D. Vanderbilt University Medical Department, Nashville, 1883, died at his home in West Nashville, Tenn., April 21, from lung disease, following influenza, after an illness of three months aged 45.

George C. Raynor, M.D. New York University, New York City, 1852, president of the Will County (Ill.) Medical Society for several terms, died at his home in Joliet, April 23, after an illness of three weeks, aged 79.

Stephen Harris Rushing, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1853, surgeon in the Confederate service during the Civil War, died at his home in Alexandria, La., April 20, aged 75.

George F. Mooney, M.D. Northwestern University Medical Department, Chicago, 1900, died at his home in Whittemore, Mich., April 21, from inflammation of the bowels, after an illness of five days, aged 35.

John L. Capen, M.D. Pennsylvania, 1875, a phrenologist of Philadelphia, died at the Pennsylvania Hospital in that city, April 23, from pneumonia, after an illness of two weeks, aged 82.

Charles W. Carpenter, M.D. Bellevue Hospital Medical College, New York City, 1880, died at his home in Newark, N. J., April 18, from cerebral hemorrhage, after a lingering illness.

Van B. Thornton, M.D. Medical Department of the Columbian University, Washington, D. C., 1861, died at his home in Hempstead, Texas, and was buried, Sept. 29, 1904.

George A. Weems, M.D. Cincinnati, College of Medicine and Surgery, 1871, surgeon in the Confederate service during the Civil War, of Pomona, Cal., died recently.

H. C. Allen, M.D., formerly of Washington County, Ky., died at the Central Kentucky Asylum for the Insane, Lakeland, April 2, from senile dementia, aged 80.

Charles E. Walker, M.D. Michigan, 1878, West Henrietta, N. Y., died in Lee Hospital, Rochester, N. Y., April 17, after an illness of several weeks, aged 50.

James Bretton Baucom, M.D., Louisville Medical College, 1884, died at Milford, Ky., March 31, from tuberculosis, after an illness of four months, aged 49.

Floyd A. Whiting, M.D. Ohio, 1891, died suddenly from heart disease, superinduced by heavy drinking, at his home in Telluride, Colo., April 15, aged 45.

J. D. Anderson, M.D. Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Iowa, 1903, died at his home in Stanhope, Iowa, April 18.

Ross Van Meter, M.D. Miami Medical College, Cincinnati, 1895, died at his home in Greensburg, Ky., April 17, after a short illness.

Oliver A. Goodhue, M.D., formerly of Englewood, Chicago, died in Tighland, Cal., April 16, from senile debility, aged 86.

William Byrd Scudder, M.D. Cincinnati, 1890, died at his home in Redlands, Cal., April 19, after a prolonged illness.

Death Abroad.

E. Hervieux, M.D., former president of the Paris Académie de Médecine, chief of the public vaccination service and physician-in-chief to the Maternité for many years, died at Paris, April 2, aged 86. His principal works were on variola and on the prophylaxis of puerperal infections.

Book Notices

BACTERIOLOGY AND SURGICAL TECHNIC FOR NURSES. By Emily M. A. Stoney, Superintendent of the Training School for Nurses, St. Anthony's Hospital, Rock Island, Ill. Second Edition, Thoroughly Revised and Much Enlarged. By Frederick R. Griffith, M.D., Surgeon, Fellow of the New York Academy of Medicine. Fully Illustrated. Cloth. Pp. 278. Price, $1.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1905.

The first edition of this work was reviewed in these columns Jan. 12, 1901, p. 121. In this, the second edition, the descriptions of technic have been brought up to date, and several chapters have been added, that dealing with obstetrical nursing being especially practical. The book is well illustrated, and should be of value to physicians, especially recent graduates, as well as to nurses, as it takes up many little points which are omitted from the curriculum of the average medical college.

THE OPEN-AIR TREATMENT OF PULMONARY TUBERCULOSIS. By F. W. Burton-Fanning, M.D. Cantab., Physician to the Norfolk and Norwich Hospital. Cloth. Pp. 176. Price, $1.50 net. Chicago: W. T. Keener & Co. 1905.

This little work gives in condensed form the results of the author's experience during the last ten years in the treatment of tuberculosis in general hospitals, sanatoria and private houses. Dr. Fanning takes up the etiology in detail and pays especial attention to the temperature, pulse and respiration, the selection of cases, the treatment of febrile and convalescent patients, diet, results of sanatorium treatment and requisites for open-air treatment.

A GERMAN-ENGLISH DICTIONARY of Terms Used in Medicine and the Allied Sciences. By the late Hugo Lang, B. A. Edited and Completed by Bertram Abrahams, M.B., B.Sc., F. R. C. P., Assistant Physician, Westminster Hospital. Cloth. Pp. 598. Price, $4.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

This work will prove of great service to those who read German medical articles. It does not pretend to analyze the German words or to dilate on the translation; only the briefest medical synonyms are used. These are usually well chosen.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

TO VISIT YOSEMITE ON THE PORTLAND TRIP.

PAYNE, OHIO, April 24, 1905.

To the Editor:—I wish information: 1. Will there be any special advantage in taking one of the specials to Portland to the meeting of the American Medical Association? 2. Will not the regular through and fast trains give the same service? 3. Will not the specials be more expensive? 4. Are the tourist sleepers comfortable and pleasant? 5. How can we best see Yosemite Valley and yet take in Los Angeles? 6. We do not want to be hurried on our trip. Any other information will be thankfully received.

J. W. CARTWRIGHT.

ANSWER.—1. No special advantage except that of companionship. 2. Yes, but there is only one through service without change from Chicago, and that is over the Northwestern-Union Pacific. Over other roads a change will have to be made somewhere, depending on the route taken. 3. No. 4. Yes, and in the summer time more so in certain respects, because the furnishings are of cooler material. The company may not be quite so select. 5. The Yosemite Valley can be reached from Merced, a point on both the Sante Fe and the Southern Pacific between San Francisco and Los Angeles, a stage line running from Merced to the Yosemite Valley, a distance of 88 miles, the fare for the round trip being $20. This route passes directly through two big tree groves. Yosemite can also be reached by way of Raymond, Madera County, some big trees being on this route. Leaving San Francisco at 7:30 a. m., one reaches Merced at noon. The stage trip includes a stop over night and Yosemite is reached the second afternoon. Hotel rates there are $3 and $4 a day; camp rates, $2. The Santa Fe and the Southern Pacific railroads will send descriptive folders with maps and full details on request. 6. All tickets allow stopovers west of certain points; in most cases all that is necessary is to notify the conductor on the train before he takes the ticket. It is best to receive instructions from the ticket agent, since the different railroads have different customs, as noted in the official announcement of the Committee on Transportation in THE JOURNAL, April 22, 1905, page 1300.

WORKS ON PRACTICE OF MEDICINE.

BANNER, ILL., April 18, 1905.

To the Editor:—What two text-books on the Practice of Medicine do you consider the latest and best for a general practitioner; also what are the two best books on Materia Medica and Therapeutics?

G. S. BETTS, M.D.

ANSWER.—The latest work on the Practice of Medicine is that by Hare, which was reviewed in THE JOURNAL, April 8, 1905, p. 1134. Other standard works on this subject are "Principles and Practice of Medicine," Osler, "Practice of Medicine," Anders, new editions of both of which have been published recently; "Practice of Medicine," Walsh, "Practice of Medicine," Tyson, and "Medical Diagnosis." White & Wilcox's work on "Materia Medica and Therapeutics" is very practical; if a larger work is desired, Butler's Materia Medica and Therapeutics will be found well adapted for physicians' use. Other useful works on this subject are "Manual of Materia Medica and Pharmacology," Culbreth, "Text-Book of Pharmacology and Therapeutics; the Action of Drugs in Health and Disease," Cushny, "Materia Medica,"

Hatcher and Sollmann, "Materia Medica and Therapeutics," Potter, and "Manual of Materia Medica and Pharmacy," Muirl.

ROSSEL'S ALOIN TEST.

NEWARK, N. J., April 18, 1905.

To the Editor:—In your editorial of this week under the heading "The Significance of Traces of Blood in Typhoid Stools," you mention Rossel's aloin test. I will greatly thank you for a description of the technic of this test. B. H. WOOLF.

ANSWER.—Rossel's method may be found in the *Deutsche Archiv für klinische Medicin*, Vol. 76, No. 6, 1903. About one dram of the feces is put in a test-tube and extracted with 5 to 10 c.c. of ether to remove the fat. After pouring off the ether the feces is thoroughly shaken up with 5 c.c. of glacial acetic acid. The acid is then poured into another test-tube and extracted with 5 to 10 c.c. of ether. The test is then made with this ether. To the ether is added 20 to 30 drops of old oil of turpentine and 10 to 15 drops of a 1 to 4 per cent. solution of Barbadoes aloin in 60 to 70 per cent. alcohol. In the presence of blood the mixture takes on a light red color, turning to bright cherry red in about ten minutes. The aloin solution should be prepared fresh each day. Rossel makes it by adding enough powdered aloin to cover the point of a small spatula to 3 to 5 c.c. of the 60 to 70 per cent. alcohol. Some of these figures are not very exact, but that is the way Rossel gives them.

State Boards of Registration

COMING EXAMINATIONS.

Mississippi State Board of Health, Jackson, May 9-10. Secretary, J. F. Hunter, M.D., Jackson.

Massachusetts Board of Registration in Medicine, State House, Boston, May 9-10. Secretary, Edwin B. Harvey, M.D., Room 159, State House, Boston.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

Board of Medical Examiners of the State of North Carolina, Greensboro, May 17. Secretary, George W. Pressly, M.D., Charlotte, N. C.

The Nebraska State Board of Health, Lincoln, May 31 and June 1. Secretary, George H. Brash, M.D., Beatrice.

Minnesota State Board of Medical Examiners, Old State Capitol Building, St. Paul, Minn., June 6-8. Secretary, C. J. Ringnell, M.D., Minneapolis.

Board of Medical Examiners of Wyoming, State Capitol, Cheyenne, June 7. Secretary, S. B. Miller, M.D., Laramie.

Michigan State Board of Registration in Medicine, The Capitol, Lansing, June 13. Secretary, B. D. Harison, M.D., Sault Ste. Marie.

State Board of Medical Registration and Examination of Ohio, Cleveland, Columbus and Cincinnati, June 13-15. Secretary, Frank Winders, M.D., Columbus.

Board Representing the President and Fellows of the Medical Society of Delaware, Dover, June 20-22. Board Representing the Homeopathic Medical Society of Delaware, Wilmington, June 20-22. Secretary of the Medical Council of Delaware, P. W. Tomlinson, M.D., Wilmington.

State Board of Medical Examiners of New Jersey, Trenton, June 20-21. Secretary, E. L. B. Godfrey, M.D., Camden.

Medical Examining Board of Virginia, Richmond, June 20-24. Secretary, R. S. Martin, M.D., Stuart.

Board of Medical Examiners of Maryland, Baltimore, June 21-24. Secretary, J. McP. Scott, M.D., Hagerstown.

Medical Council of Pennsylvania, Philadelphia and Pittsburg, June 27. Secretary of the Medical Council, H. C. Shaeffer, M.D., Harrisburg.

Arkansas April Report.—Dr. J. P. Runyan, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination, held at Little Rock, April 11-12, 1905. The number of subjects examined in was 7; total number of questions asked, 50; percentage required to pass, 75. The total number examined was 68, of whom 51 passed and 17 failed. Of those who passed 6 were graduates and 45 undergraduates. All the unsuccessful applicants were undergraduates.

Nebraska February Report.—Dr. George H. Brash, secretary of the Nebraska State Board of Health, reports the oral and written examination held at Lincoln, February 8. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of applicants examined was 9, of whom 7 passed and 2 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
College of P. & S., New York	(1904)	75.75
Barnes Med. College, St. Louis	(1903)	87.66
Grant University, Chattanooga	(1903)	80
University of Colorado	(1904)	86.37
Rush Medical College	(1902)	92.75
Woman's Medical College, Philadelphia	(1903)	80.37
College of P. & S. Keokuk	(1902)	82.87
FAILED.		
Eclectic Med. Inst., Cincinnati*		74.66
Barnes Med. Coll., St. Louis**	(1902)	

*Year of graduation not given.
**Withdrew from examination after writing one paper. Two persons failed to appear after making application.

New Nevada Medical Practice Act.—Under the new law, a certificate will be issued, without special examination, to a person who furnishes satisfactory proof of having received a diploma from a medical school whose requirements, at that time, conformed to those of the Association of American Medical Colleges. A person possessing a diploma granted by any other college must in addition pass a satisfactory examination before the board in the subjects prescribed. The examination and registration fee is $25. The act provides for the usual exemptions, and also contains a reciprocity clause. Dr. S. L. Lee, Carson City, is the secretary of the Board of Examiners.

Oklahoma March Report.—Dr. J. W. Baker, secretary of the Oklahoma Examining Board, reports the written examination held at Guthrie. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 66.6 in each branch. The total number examined was 21, of whom 9 passed and 12 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
University of Missouri	(1904)	79
College of P. & S., St. Louis	(1897)	66
University Med. Coll. of Kansas City	(1884)	70
University Med. Coll. of New York	(1880)	69
Rush Medical College	(1900) 68; (1902)	85
Baltimore University School of Medicine	(1904)	75
Central Medical Coll., St. Joseph, Mo	(1904)	70
Chicago Homeopathic Med Coll	(1896 and 1904)	98
College of P. & S., Baltimore	(1885)	74
Hospital College of Medicine, Louisville	(1887)	70
FAILED.		
Kentucky School of Medicine, Louisville	(1890)	44
Missouri College of Medicine, St. Louis	(1859)	59
Meharry Med. Coll., Nashville, Tenn	(1904)	53
Barnes Med. Coll., St. Louis	(1899)	64
Kansas City Homeo. Med. Coll	(1893)	65
Gate City Med. Coll., Texarkana, Texas	(1903)	54
Arkansas Industrial University	(1894)	49
Name of college not given		53, 55

Utah January and April Reports.—Dr. R. W. Fisher, secretary of the Board of Medical Examiners of the state of Utah, reports the January and April examinations. The following colleges were represented:

PASSED (JANUARY). College.	Year Grad.	Per Cent.
Rush Medical College	(1896) 82; (1903)	82, 86
College of P. & S., San Francisco	(1904)	81
Victoria Med. Coll. (Canada)	(1874)	81
Univ. of Denver, Med. Dept	(1895)	78
Gross Med. College	(1895)	76
PASSED (APRIL).		
Medical Department, St. Louis Univ.	(1904)	75
Baltimore Medical College	(1894)	86
Univ. of Denver Medical Department	(1901)	85
Chattanooga Med. College	(1901)	75
FAILED.		
Laval Univ. Med. Dept	(1901)	48
St. Louis Univ. Med. Dept.*		68.8

*Year of graduation not given.

The Public Service

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, for the two weeks ending April 29, 1905:

Reynolds, F. P., surgeon, ordered to proceed from Presidio of San Francisco, to Presidio of Monterey, Cal., with Fourth Cavalry, for duty at the Yosemite National Park, Cal.

Kiersted, Henry S., asst.-surgeon, ordered to proceed from Presidio of Monterey, Cal., with Fourth Cavalry, to Sequoia National Park, Cal.

Powell, Junius L., surgeon, relieved from duty at Fort Hamilton, N. Y., and ordered to Manila, P. I., for duty in Philippines Division, about June 30, 1905.

Ewing, Charles B., surgeon, relieved from duty at Columbus Barracks, Ohio, and ordered to Manila, P. I., for duty in the Philippines Division, about July 31, 1905.

Harris, H. S. T., surgeon, relieved from duty at Fort Slocum, N. Y., and ordered to Manila, P. I., for duty in Philippines Division.

Stiles, Henry R., asst.-surgeon, left Washington Barracks, D. C., on ten days' leave of absence.

Winn, Robert N., asst.-surgeon, advanced to rank of captain asst.-surgeon.

Willcox, Charles, surgeon ordered from Fort Totten, N. Y., to Fort Wadsworth, N. Y., for duty with 56th and 57th Companies

Coast Artillery, to Artillery District of Baltimore, and then report for duty, during Army and Navy maneuvers.

Truby, Willard F., Cox, Walter, Robbins, C. P., Reno, William W., Roberts, William, Thornburgh, R. M., Jean, George W., and Jones, Percy L., asst.surgeons, ordered to the Artillery District of the Chesapeake, Fort Monroe, Va., for duty, during Army and Navy maneuvers.

Raymond, H. I., surgeon, granted ten days' leave of absence.

Craig, Chas. F., asst.-surgeon, order relieving him from duty at U. S. Army General Hospital, Presidio of San Francisco, Cal., and assigning him to duty on transport *Sherman* for duty in Philippines Division is revoked.

Carter, Edward C., surgeon, granted two months' leave of absence, with permission to return to the United States from the Philippines via the Suez Canal and Europe.

Billingslea, C. C., asst.-surgeon, granted two months' leave of absence.

La Garde, Louis A., surgeon, left Ancon, Canal Zone, on six weeks' leave of absence.

Richardson, William H., contract surgeon, ordered from Cincinnati, Ohio, to Fort Sheridan, Ill., for duty.

McAllister, John A., dental surgeon, arrived at San Francisco, Cal., on the transport *Sherman,* and ordered to the Presidio of Monterey, Cal., for duty.

Craig, Emmett J., dental surgeon, relieved from duty at the Presidio of Monterey, Cal., and ordered to the Philippines Division for duty.

Rebert, Michael A., contract surgeon, returned to duty at Fort Totten, N. Y., from leave of absence.

Probert, Merton A., contract surgeon, granted an extension of twenty days to his leave of absence.

Wilson, James S., asst.-surgeon, assignment to duty with the joint Army and Navy exercises, Fort Howard, Maryland, is revoked.

Yost, John D., asst.-surgeon, ordered to proceed from Honolulu, H. T., to Presidio of San Francisco, for examination for advancement to rank of captain; on completion of examination to return to Honolulu.

Webber, Henry A., asst.-surgeon, detailed member of board to meet at Vancouver Barracks, Washington, to examine candidates for admission to U. S. Military Academy, West Point, N. Y.

Brown, Henry L., asst.-surgeon, ordered to accompany First Squadron, Seventh Cavalry, from Fort Meyer, Va., to Manila, P. I., for duty, instead of Ninth Infantry, from Madison Barracks, N. Y.

Craig, Charles F., asst.-surgeon, relieved from duty at U. S. Army General Hospital, Presidio of San Francisco, and assigned to duty as surgeon, transport *Logan;* on arrival in Manila to report for duty in the Philippines Division.

Wadhams, S. H., asst.-surgeon, relieved from duty as surgeon, transport *Logan,* and to report to the military secretary of the Army for further orders.

Rockhill, E. P., asst.-surgeon, sick leave extended thirty days.

Straub, Paul F., asst.-surgeon, having reported to Secretary of War, is ordered to duty with the Isthmian Canal Commission.

Hutton, Paul C., asst.-surgeon, left General Hospital, Fort Bayard, N. Mex., on ten days' leave.

Williams, A. W., asst.-surgeon, assigned to temporary duty with troops from Fort Hamilton, N. Y., to Army and Navy exercises, Fort Monroe, Va.

Brown, Henry L., asst.-surgeon, granted fourteen days' sick leave of absence.

Palmer, Fred W., asst.-surgeon, reports for duty at U. S. Rifle Range, Arcadia, Mo.

Bushnell, Geo. E., surgeon, detailed to represent the Medical Department of the Army at meeting of the National Association for the Study and Prevention of Tuberculosis, in Washington, D. C., May 18-19, 1905.

Chidester, Walter C., asst.-surgeon, granted two months' leave of absence.

Edwards, James F., asst.-surgeon, granted two months' leave of absence.

Hutton, Paul C., asst.-surgeon, leave of absence extended thirty days.

Reynolds, F. P., surgeon, relieved from duty at Presidio of San Francisco, and ordered to Fort W. H. Seward, Alaska, for duty.

Clayton, Jere B., asst.-surgeon, relieved from duty at Fort W. H. Seward, Alaska, and ordered to proceed to Seattle, Wash.; and report by telegraph to the military secretary for further orders.

Rockhill, E. P., asst.-surgeon, relieved from duty at Presidio of San Francisco, and ordered to Fort Wingate, N. Mex., for duty.

Russell, Fredk. F., asst.-surgeon, relieved from duty at Fort Wingate, N. Mex., and ordered to the Presidio of San Francisco, for duty.

Ebert, Rudolph G., surgeon, ordered to make inspection of medical department at Forts Walla Walla, Wright, Worden, Casey, Flagler, Lawton, Ward, and Columbia, Wash., and Fort Stevens, Ore.

Roberts, William, asst.-surgeon, reports arrival at Fort Greble, R. I., for temporary duty.

Long, Charles J., dental surgeon, left Fort Assiniboine, Mont., and arrived at Fort Harrison, Mont., for temporary duty.

McCall, James H., contract surgeon, left Key West Barracks, Fla., for Fort Moultrie, S. C.

George, William R. S., contract surgeon, left San Juan, P. R., and arrived at Henry Barracks, Cayey, P. R., for temporary duty.

Mabry, William C., contract surgeon, granted leave of absence for one month.

Hogue, Gustavus I., contract surgeon, ordered from Fort McDowell, Cal., to the Depot of Recruits and Casuals, Angel Island, Cal., for duty.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending April 29, 1905:

Urie, J. F., surgeon, ordered to the *Pennsylvania,* April 25.

Bell, W. L., P. A. surgeon, ordered to the Naval Hospital, Mare Island, Cal., for treatment.

Manchester, J. D., asst.-surgeon, detached from the *Petrel* when put out of commission, and ordered to the *Princeton.*

Garton, W. M., P. A. surgeon, ordered to Washington, D. C., and to report to the Surgeon General, April 29, for a course of instruction at the Naval Museum of Hygiene and Medical School.

Purlon, F. M., P. A. surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, April 29, and ordered to report to the Surgeon General for course of instruction at the Naval Museum of Hygiene and Medical School.

Dessez, P. T., asst.-surgeon, when discharged from treatment at the Naval Hospital, Norfolk, Va., granted sick leave for two months.

Reynolds, C. F., pharmacist, detached from the *Hancock,* April 29, and ordered to Mare Island, Cal., for duty in the medicine and surgery storehouse of that yard.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending April 26, 1905:

Sawtelle, H. W., surgeon, to report at Washington, D. C., for special temporary duty.

Cumming, H. S., P. A. surgeon, leave of absence for ten days granted by Bureau letter of April 10, revoked.

Billings, W. C., P. A. surgeon, to proceed to Quebec, Canada, for duty in office of U. S. Commissioner of Immigration.

Francis, Edward, asst.-surgeon, to proceed to Missoula, Mont., for special temporary duty.

Burkhalter, J. T., asst.-surgeon, granted leave of absence for three days from April 27.

Trask, J. W., asst.-surgeon, assigned as Chief of Miscellaneous Division in the Bureau, Washington, D. C.

Smith, F. C., asst.-surgeon, granted leave of absence for seven days from April 22, 1905, under Paragraph 191 of the Regulations.

Goldsborough, E. W., acting asst.-surgeon, granted leave of absence for four days from April 25.

Rice, W. E., acting assistant surgeon, granted leave of absence for fourteen days from May 1.

PROMOTION.

McKay, Malcolm, pharmacist of the second class, promoted to the grade of pharmacist of the first class, effective Jan. 8, 1905.

BOARD CONVENED.

Board convened to meet at Port Townsend, Wash., April 27, 1905, for the Physical examination of an officer of the Revenue Cutter Service. Detail for the board: P. A. Surgeon J. H. Oakley, chairman; P. A. Surgeon D. E. Robinson, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended April 29, 1905:

SMALLPOX—UNITED STATES.

California: Los Angeles, April 8-15, 3 cases.
District of Columbia: Washington, April 15-22, 2 cases, 1 death.
Florida: Jacksonville, April 15-22, 5 cases.
Illinois: April 15-22, Chicago, 29 cases, 2 deaths; Danville, 2 cases.
Louisiana: New Orleans, April 15-22, 22 cases, 4 imported.
Michigan: April 15-22, Detroit, 2 cases; Grand Rapids, 9 cases.
Missouri: April 15-22, St. Joseph, 1 case, imported; St. Louis, 8 cases, 2 deaths.
Ohio: Toledo, April 1-15, 2 cases.
Pennsylvania: April 15-22, Lebanon, 3 cases; York, 13 cases.
South Carolina: Charleston, April 15-22, 2 cases; Greenville, April 8-15, 1 case.
Tennessee: Nashville, April 15-22, 1 case.

SMALL-POX—INSULAR.

Philippine Islands: Manila, March 4-11, 1 case.

SMALLPOX—FOREIGN.

Brazil: Pernambuco, March 1-15, 181 deaths; Rio de Janeiro, March 26-April 8, 41 cases, 8 deaths.
Chili: At many ports, March 31, present.
China: Shanghai, March 4-11, 2 cases (foreigners); 3 deaths (native).
Colombia: Cartagena, March 26-April 1, 1 case, 1 death.
France: Nantes, March 18-April 8, 42 cases, 8 deaths; Paris, March 26-April 8, 41 cases, 8 deaths.
Great Britain: Birmingham, April 1-8, 1 case; Bradford, March 25-April 8, 19 cases, 1 death; Cardiff, April 1-8, 1 case; Hull, March 25-April 1, 1 case, 1 death; Leeds, April 1-15, 3 cases; Leith, April 1-8, 1 case; London, March 25-April 1, 2 cases; April 1-8, Southampton, 2 cases, 1 death; South Shields, 5 cases, 1 death.
India: Bombay, March 21-28, 127 deaths; Calcutta, March 18-25, 7 deaths; Karachi, March 19-26, 8 cases, 3 deaths.
Malta: Malta, March 25-April 1, 1 case, 1 death.
Norway: Christiania, April 1-8, 2 cases.
Russia: Odessa, March 25-April 8, 18 cases, 2 deaths; St. Petersburg, March 18-April 1, 8 cases, 6 deaths; Warsaw, Jan. 28-Feb. 11, 4 deaths.
Turkey: Constantinople, March 19-April 9, 8 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, March 26-April 2, 13 cases, 5 deaths.
Mexico: Coatzacoalcos, March 18-April 8, 3 cases, 1 death; Tehuantepec, April 9-15, 1 case.

CHOLERA.

China: Tientsin, March 4-11, 1 case, 1 death.
India: Bombay, March 21-28, 1 death; Calcutta, March 18-25, 68 deaths.

PLAGUE—INSULAR.

Philippine Islands, Manila, March 4-11, 2 cases, 3 deaths.

PLAGUE.

Africa (British): Cape Colony, March 11-18, 2 cases, 2 deaths; Uganda, Feb. 11, 25 deaths.
Arabia: Aden, March 24-31, 33 cases, 32 deaths.

Australia: Brisbane, Feb. 18-March 11, 6 cases, 3 deaths.
Chili: March 31, Arica, 3 cases, 2 deaths; Pisagua, 150 cases, many deaths.
India: General, March 11-18, 47,602 cases, 42,088 deaths; Bombay, March 21-28, 652 deaths; March 18-25, Calcutta, 570 deaths; Karachi, March 18-25, 140 cases, 127 deaths.
Peru: Arequipa, March 31, reported; March 19-26, Chiclayo, 12 cases, 9 deaths; Eten, 1 death; Lambayeque, 3 cases, 1 death; Huanchaco, 1 death; Chepen, 1 death; San Pablo, 1 case, 1 death; Mollendo, 24 cases, 3 deaths; Lima, 2 cases.
Straits Settlements: Singapore, Feb. 25-March 4, 1 death.

Medical Organization

Arizona.

COCHISE AND GRAHAM COUNTIES MEDICAL SOCIETY.—The physicians of these counties met at Bisbee, March 18, and organized a medical society for Cochise and Graham counties. The following officers were elected: President, Dr. Allen R. Hickman, Douglas, Cochise County; vice-president, Dr. Harris W. Horn, Clifton, Graham County; secretary, Dr. Bledsoe, Bisbee, Cochise County; treasurer, Dr. John E. Bacon, Tombstone, Cochise County, and censors, Drs. Francis E. Shine, Bisbee, Cochise County; Charles L. Caven, Bisbee, Cochise County, and Frederick T. Wright, Douglas, Cochise County.

Arkansas.

TENTH COUNCILOR DISTRICT.—The society for this district met at Fort Smith March 21. Dr. John S. Shibley delivered the councilor address, "The Value of Co-operation in Medical Work," in which he said that this is an age of concentration and organization. To do the work of the world to-day requires co-operation and combination. The individual is no longer sufficient. Formerly competition was the rule, now amalgamation and fraternity in all lines of activity are recognized as necessary. The medical profession must catch the spirit of the times, organize its forces and unify its efforts, or it will be left behind in the march of progress.

Some of the benefits of medical societies are: Acquisition and diffusion of knowledge. Friendly criticism from others working along the same lines. Sharing with others the results of one's own experience and discoveries. Better acquaintance among physicians. The local medical society is a good equalization board of personal values. The local medical society creates and fosters an *esprit de corps* in the profession. Organization enables the profession to mold public opinion and direct action on sanitary matters.

Among the hindrances to organization are meager support on the part of the physicians as a class and selfishness and indifference on the part of the individual physician.

Medicine is a profession, not a trade. Its prime object is to do good, not to make money. To do his best work a physician must have money, and yet money is not his prime object. It is largely a question of motive. If a physician's chief aim is to do the most service to the profession and to society, he can find time to attend district, state and national medical societies and to work for their success.

Indian Territory.

CENTRAL DISTRICT MEDICAL SOCIETY.—At the session of this society held in South McAlester, April 12, much of the discussion was on the medical law for the proposed new state. The following officers were elected: Dr. Frank L. Watson, Alderson, president; Dr. Thomas J. Long, Atoka, vice-president, and Dr. Le Roy Long, South McAlester, secretary-treasurer.

Iowa.

MAHASKA COUNTY MEDICAL SOCIETY.—Pursuant to a call eleven physicians of Mahaska County met at Oskaloosa, April 25; reorganized the society on the standard plan; applied for a charter, and signed the constitution. Dr. Joseph C. Barringer presided and Dr. Herman C. Homer acted as secretary. The old officers were retained.

FAYETTE COUNTY MEDICAL SOCIETY.—The physicians of the county met at Oelwein, April 11, organized a medical society and adopted the standard constitution and by-laws. The following officers were elected: President, Dr. James W. McLean, Fayette; vice-president, Dr. George D. Darnall, West Union, and secretary, Dr. Elizabeth Smith, Oelwein.

Kansas.

WABAUNSEE COUNTY MEDICAL SOCIETY.—Nine of the 21 physicians in this county met recently at Alma and organized a medical society.

MARION COUNTY MEDICAL SOCIETY.—A county society was recently organized at Marion with the following officers: Dr. Llewellyn A. Buck, Peabody, president; Dr. Nathaniel M. Smith, Marion, vice-president; Dr. Gideon P. Marner, Marion, secretary; Dr. R. C. Smith, Marion; treasurer, and Drs. Joseph N. Hannaford, Marion, Leonard S. Wagar, Florence, and Grant Meyer, Lincolnville, censors.

POTTAWATOMIE COUNTY MEDICAL SOCIETY.—This association completed its organization on the standard plan, at Westmoreland, April 18, by adoption of the constitution and by-laws in conformity with that suggested by the American Medical Association. The following officers were elected: Dr. Edwin F. Richardson, Onaga, president; Dr. William P. Wilson, Westmoreland, vice president; Dr. Egdar L. Simonton, Warnego, secretary, and Dr. Peter T. Conlan, St. Mary's, treasurer.

Kentucky.

BOYD COUNTY MEDICAL SOCIETY.—Dr. James W. Kincaird, Catlettsburg, will organize a county medical society in Ashland early in May.

Missouri.

LINCOLN COUNTY MEDICAL SOCIETY.—Dr. Walter B. Dorsett, St. Louis, councilor for the seventh district, met physicians of the county at Troy, April 20, and organized a medical society on the standard plan with the following officers: Dr. Solomon R. McKay, Troy, president; Dr. J. Strickland, Moscow Mills, vice-president; and Dr. William P. Smith, Troy, secretary-treasurer.

PIKE COUNTY MEDICAL ASSOCIATION.—A county association was organized at Bowling Green, April 24, with the aid of Dr. Woodson Moss, Columbia, and Dr. Edwin S. Cave, late councilor for the sixth district. The following officers were elected: President, Dr. Marion O. Biggs, Bowling Green; vice-president, Dr. James C. Shelton, New Hartford, and secretary-treasurer, Dr. T. Guy Hetherlin, Louisiana.

New Mexico.

LUNA COUNTY MEDICAL SOCIETY.—The physicians of the county met in Deming, March 8, and organized a medical society with the following officers: Dr. John G. Moir, president; Dr. Jesse O. Michael, Deming, vice-president; Dr. Samuel D. Swope, Deming, secretary, and Dr. Pinckney M. Steed, Deming, treasurer.

Philippine Islands.

ANNUAL MEETING OF THE PHILIPPINE ISLANDS MEDICAL ASSOCIATION.—At the annual meeting of this association the following officers were unanimously elected: President, Major Edward C. Carter, U.S.A.; vice-presidents, Drs. W. G. Heiser and B. Cuervo; secretary-treasurer, Dr. Robert E. L. Newborne; councilor for five years, Dr. Richard P. Strong.

South Carolina.

ANDERSON COUNTY MEDICAL SOCIETY.—This society has been reorganized with Dr. Waller H. Nardin, Anderson, as president.

NEWBERRY COUNTY MEDICAL SOCIETY.—This society was organized at Newberry, March 15, with the following officers: President, Dr. James K. Gilder, Newberry; vice-president, Dr. George Y. Hunter, Prosperity; secretary-treasurer, Dr. J. G. McMaster, Newberry, and delegate to the state association, Dr. W. Gustav Houseal, Newberry.

HAMPTON COUNTY MEDICAL SOCIETY.—At the meeting of this society in Hampton, March 23, Dr. Edward F. Parker, Charleston, councilor for the district, was present. The following officers were elected: President, Dr. Southwood Smith, Garnett; vice-president, Dr. J. L. Folk, Brunson; secretary-treasurer, Dr. Charles A. Rush, Hampton; delegate to state association, Dr. M. B. Monsen, Luray, and censors, Drs. J. W. Colson, Varnville; C. P. Walter and C. R. Peeples.

LEE COUNTY MEDICAL ASSOCIATION.—Dr. Walter Cheyne, Sumter, councilor of the seventh district, visited Bishopville, March 25, and organized a county society on the standard plan, with the following officers: President, Dr. Robert Y. McLeod, Bishopville; vice-president, Dr. A. C. Baskin, Bishopville; secretary-treasurer, Dr. L. H. Jennings, Bishopville; delegate to state association, Dr. Jesse B. Bullock, Lucknow, and committee on public health and legislation, Drs. Bush McLauchlin, A. C. Baskin, Bishopville, and Thomas B. Manning, Bishopville.

West Virginia.

TYLER COUNTY MEDICAL SOCIETY.—This county has organized and has elected Dr. George B. West president and Dr. Victor H. Dye, secretary, both of Sistersville.

Wyoming.

SHERIDAN COUNTY MEDICAL SOCIETY.—Physicians of Sheridan met, April 17, and effected a permanent organization in co-operation with the Wyoming State Medical Society. The following officers were elected: Dr. Charles R. L. Halley, president; Dr. G. B. Simpson, vice-president; Dr. T. E. Marshall, secretary; Dr. Hurd, treasurer, and Drs. F. A. Hodson, G. B. Simpson and William Miller, censors, all of Sheridan.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore, July 11-14, 1905.

Utah State Medical Association, Salt Lake, May 9-10.
Medical Society of Nevada, Reno, May 9-10.
Louisiana State Medical Society, New Orleans, May 9-11.
New Mexico Medical Society, Las Vegas, May 10.
Ohio State Medical Association, Columbus, May 10-12.
American Ophthalmological Society, Boston, May 11-12.
American Association of Physicians, Washington, May 16-17.
Arkansas Medical Society, Little Rock, May 16-17.
Illinois State Medical Society, Rock Island, May 16-18.
Missouri State Medical Assn., Excelsior Springs, May 17-18.
Montana State Medical Association, Butte, May 17-18.
Iowa State Medical Society, Des Moines, May 17-19.
New Hampshire Medical Society, Concord, May 18-19.
Medical Society of the State of N. Carolina, Greensboro, May 23-25.
Connecticut Medical Society, Hartford, May 24-25.
North Dakota State Medical Society, Grand Forks, May 24-25.
American Gynecological Society, Niagara Falls, N. Y., May 25-27.
West Virginia State Medical Association, Wheeling, May 24-26.

COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION.

First Annual Conference, held in Chicago, April 20, 1905.

Chairman, DR. ARTHUR D. BEVAN, Presiding.

This meeting was called for the purpose of conferring with representatives of state and territorial licensing and examining boards, the American and Southern Medical College associations, and the Government medical services. These bodies were represented by the following:

STATE DELEGATES: Colorado, S. D. Van Meter, Denver; District of Columbia, Wm. C. Woodward, Washington; Illinois, George W. Webster and W. H. Hipp, Chicago; Indiana, J. C. Webster, Lafayette, and J. M. Dinnen, Fort Wayne; Iowa, Fred W. Powers, Waterloo; Kentucky, Wm. Bailey, Louisville; Louisiana, A. F. Barrow, St. Francisville; Nebraska, A. B. Somers, Omaha; New Mexico, George W. Harrison, Albuquerque; New York, Albert Vander Veer, Albany; North Dakota, H. M. Wheeler, Grand Forks; Oregon, H. E. Currey, Baker City; South Carolina, S. C. Baker, Sumter; West Virginia, A. R. Warden, Grafton.

Association American Medical Colleges: J. M. Dodson, Chicago; Southern Medical College Association: G. C. Savage, Nashville; U. S. Army: Col. Philip F. Harvey, Assistant Surgeon-General; U. S. Public Health and Marine-Hospital Service: P. A. Surgeon, George B. Young.

Others present were:

Dr. L. S. McMurtry, Louisville, President American Medical Association; Dr. Geo. H. Simmons, Secretary American Medical Association; Prof. J. H. T. Main, Dean Grinnell College, Iowa; Prof R. D. Harlan, President Lake Forest College, Illinois; Dr. L. F. Barker, University of Chicago.

The delegates from the following states, appointed by the respective governors, were absent:

Alabama, W. H. Sanders; Arkansas, J. P. Runyon; Georgia, P. D. Patterson; Kansas, G. F. Johnston; Maryland, J. McP. Scott; Mississippi, J. A. Rhodes; Montana, W. C. Riddell; New Hampshire, J. F. Robinson; New Jersey, E. L. B. Godfrey; Oklahoma, E. G. Sharp; Pennsylvania, H. Beates, Jr.; Texas, D. J. Jenkins; Utah, R. W. Fisher; Vermont, W. S. Nay; Virginia, R. W. Martin; Wisconsin, W. T. Sarles; Wyoming, E. O. Rohrbaugh.

DR. LEWIS S. MCMURTRY, President of the American Medical Association, being introduced to the conference, directed attention to the fact that ever since the foundation of the American Medical Association its chief purpose has been to promote and to advance the standard of medical education in the United States. For years the delegates to the annual meetings of the Association represented the medical colleges of the country; hence, the Council on Medical Education is carrying out one of the most important purposes of the parent bodies.

This meeting, he said, was called for the purpose of bringing together the various examining and licensing powers of the states and territories, to secure a mutual interchange of ideas and counsel. It is evident that any movement looking toward reciprocal registration between the various states and toward uniformity in standards and requirements should be held under the auspices of the American Medical Association, for the reason that it has for its great purpose the elevation of the masses of the profession, which it is fulfilling by bringing together the doctors from all parts of the country.

The History of the Council and the Scope of Its Work.

The scope of the work of the Council was outlined in full by the chairman. After giving an elaborate history of the organization of the Council and of the events which led up to it and making a statement of what it had accomplished, he said:

The program of to-day includes the reports of subcommittees on Preliminary Education on Curricula, and the discussion on such phases of the subject of medical education as the Council considered were especially pressing at the present time, as, What shall be the standard of recognition of medical colleges? The question of reciprocal registration. The relation between the college of liberal arts and the medical school. And, most important of all, and, in fact, the real purpose of this conference is found in the last section of the program, i. e., the question of coöperation between the American Medical Association and the state licensing bodies in the effort at elevating medical education.

The existing conditions of medical education in this country are unsatisfactory as compared with the conditions found in England and Germany. The existing conditions are well shown by an abstract of laws regulating the practice of medicine in the various states and territories of the United States, published in pamphlet form by THE JOURNAL of the A. M. A., Jan. 1, 1905.

A table giving the principal features of the different state laws shows that all of the 52 states and territories, including Hawaii and Porto Rico, have medical laws of more or less value. Of these 52, 35 require both a diploma and a state examination; 12 an examination alone; 5 either a diploma or an examination. In 13 the examining board is a separate body; in the remainder the examining is a function of a board, such as the state board of health. Only 5 states demand a preliminary examination by the state. In 17 the examining board is either nominated or approved by the state medical societies.

Although a critical analysis of existing conditions shows an unsatisfactory state of affairs, still, as compared with the conditions which existed twenty years ago, even the most pessimistic critic must admit that we have made great progress. Then many states had no medical laws at all. In many registration and the payment of a small license fee was all that was required. Many accepted a diploma, and but two, or at most three, years of medical work was insisted on; and practically none demanded any evidence of preliminary education.

What would be regarded as a perfectly satisfactory state of affairs for medical education, we might say ideal state of affairs, from our present view-point? Such medical education must be equal to that required by England and Germany. It would comprise:

1. A preliminary education such as would enable the student to enter our standard universities, with an average age of about 18; the passing of this preliminary education by the state authorities.

2. Five years of medical work, the first year to include physics, chemistry and biology. This year to be taken either in a medical school or in a college of liberal arts; and the last year of the medical course to be so arranged as to bring the student in actual contact with patients at the bedside.

3. A diploma from a medical school in good standing, this being evidence that the student has completed his work and passed examinations satisfactory to the medical school; and, further, that the medical school, as shown on investigation either by the state board or by the Council on Medical Education of the American Medical Association, or both, is doing the kind of work which entitles it to recognition.

4. This diploma should be accepted as evidence entitling the holder to take an examination before his state board. And, on passing such examination, which should be so conducted as to test in the most thorough way the candidate's knowledge, he should be entitled to practice.

5. Essentially the same state of affairs medical should exist in all the states and territories, and the license to practice conferred by one state should be recognized by all.

In view of the rapid progress made within the last twenty years, it would seem reasonable to believe that within another period of twenty years we shall find medical education in this country advanced to the condition which we have outlined. However, in order to accomplish such results, much must be done, and all the agencies which can assist must co-operate toward the desired end, and the advancement can not take place all at once, but one step at a time. There are many practical obstacles which must be overcome. They must be recognized.

and their weight and influence considered. Among them two are especially important: First, the inequality, as far as general education is concerned, between the various states. It is easier to demand a high standard in New York and Minnesota than in some of the Western and Southern states, because public opinion and professional opinion has not been educated to demand a high standard in those states. It is believed, however, that the profession of every state and territory can do very much to correct this by preaching and demanding higher ideals.

A second obstacle, and one of a good deal of moment, is found in the medical colleges which are conducted as private corporations. There can be no longer any excuse for the existence of a medical school which is conducted by a body of men for profit. It is only necessary to state the demonstrated fact that it costs more to furnish a student with a medical education than he pays for fees to show conclusively that a medical school supported solely by the fees of students, and which pays a profit to its owners, is doing poor work and has no warrant for existence. Fortunately, with the increase of requirements, especially for preliminary education, these medical schools will be forced either to seek endowments or absorption by universities which will enable them to do acceptable work, or else they will be condemned to extinction by the law of the survival of the fittest.

However, these schools represent property and professional interest, and honorable achievement in the past, which are not to be ignored, and, if possible, sufficient notice of increase in requirements should be given and the advances made at a rate which will enable those which are worth saving to bring themselves up to the higher requirements.

What can we reasonably demand as a minimum requirement at the present time of those seeking to enter the medical profession, and how can this demand be best enforced? These are the questions which are vital and pressing. Personally, I feel that the following requirements are reasonable and can, by the cooperation of the agencies interested in medical education, be made at once effective:

1. Preliminary education, a four-year high school or academy education, such as shall prepare a student to pass the entrance examination to our standard universities. The preliminary education to be passed on by the state authorities, or, at least, not by the faculty of the medical school.

2. A medical course of four years, each year of at least thirty weeks (exclusive of holidays) in a medical school in good standing; such standing to be determined by a joint conference of the Council on Medical Education of the American Medical Association and delegates from the state licensing bodies.

3. The presentation of a diploma from such school in good standing shall entitle the holder to appear before his state board for examination for license to practice.

4. The passing of a satisfactory examination before a state examining board.

It would seem that we might obtain action from the legislatures and medical examining boards which would insure the adoption of the general plan outlined above; and, further, we could hope that, as one after the other of the states conformed to these regulations, a scheme of reciprocity might be developed which would soon embrace all but the most backward of the states; and when the great majority of the states agreed the weaker sisters soon would fall into line.

What we need is co-operation, especially the co-operation between the medical profession, represented by the American Medical Association, the state and county medical societies and the state authorities, represented by the state licensing and examining boards. The most important question, therefore, before this conference is, How can the American medical profession and the state licensing bodies co-operaate to elevate and control medical education? It is believed that such co-operation is possible. In such co-operation it will be the function of the American Medical Association to represent and possibly mold the opinion of the medical profession, and to employ its influence and the influence of the county and state medical societies in obtaining proper medical legislation. In such co-operation it will be the function of the state licensing bodies to protect the interests of the public and the profession by seeing that the medical laws are properly interpreted and enforced, and from their intimate knowledge with the medical acts they can often be of service in securing or modifying medical legislation.

It is not the purpose of the Council on Medical Education of the American Medical Association to attempt to arrogate to itself any special powers, nor does it desire either to criticise or interfere in any way with any of the agencies which are already in the field. If its creation is to result in good, it must be the means of obtaining co-operation between the medical profession, the medical school, the college of arts, the state examining boards, the government services, and all the factors which are interested in elevating and controlling medical education.

Gentlemen, with such objects in view, we ask your assistance and advice and co-operation, and we thank you for responding to our invitation and for your attendance here to-day. It is hoped that the questions submitted will have the fullest discussion, in which you are all asked to take part. It is hoped that this first conference may lead to the establishment of an annual conference between the bodies which are represented here to-day, and that such conferences may be productive of much good.

Preliminary Education.

On behalf of the Subcommittee on Preliminary Education, Dr. V. C. Vaughan reported as follows:

REPORT OF THE COMMITTEE ON REQUIREMENTS FOR ADMISSION TO MEDICAL SCHOOLS.

To the Council on Education of the American Medical Association:

Gentlemen: Your committee appointed to report on the requirements for admission to medical schools submits the following:

Medicine has from the remotest times been known as one of the learned professions, and its history, in a general way at least, justifies this honor. Professional pride should, therefore, lead those in whose charge the good name of the profession now rests to see to it that its ranks are recruited with the best. It is true that the medical charlatan still flourishes, and that the credulity of the mass of mankind in medical matters grows less, if at all, very slowly; yet there has never been a time when the regular medical profession had more absolute control of the portals through which aspirants for its honors must pass than at the present time. The schools can set their standards as high as they wish, and beyond and above the schools are the state boards of medical examiners which can act as a second barrier to the admission of the undesirable. If, therefore, in this condition of affairs the reputation of the profession for wide and accurate learning suffers in the least, its leaders and teachers are responsible for its abasement.

There is no crying need for more physicians and surgeons. The supply quite equals the demand, and for this reason the time is propitious for raising the barrier to admission one notch higher. We do not mean that a close corporation or a trades union should be formed, but we do mean that the reputation of our profession for culture and learning should be strengthened, and so long as the supply outruns the demand we are in duty bound to select with more care the individuals that constitute the supply.

Modern medicine consists of those facts, gathered from the various sciences, that are capable of utilization in either the prevention or cure of disease. All the physical sciences, at least the fundamental ones, have made and are still making contributions to medical knowledge, and medicine can advance no faster than the sciences on which it is founded advance. Discovery of facts must precede their application. Therefore, medical men must encourage research work, and it is a duty imposed on every medical school to advance the bounds of scientific knowledge. For centuries there were individual medical men who believed that certain diseases are disseminated by low forms of life, which, multiplying parasitically in the bodies of men, elaborate poisons and thus induce the symptom-complex of these diseases. But the germ theory of disease had to await the discovery of the compound microscope before it could pass from the list of theoretical conceptions into that of demonstrated facts. Times that are marked by scientific discoveries are closely followed by medical advances. The chemist had to produce ether and chloroform before they could be applied in anesthesia. The perfection of the laryngoscope by Garcia opened up the way to the study and treatment of diseases of the larynx, and without the ophthalmoscope we would still be blind so far as the recognition of pathological conditions of the fundus of the eye are concerned. The laborious and long-continued investigations of Beaumont laid the foundations of all our present-day knowledge of disturbances of digestion. Illustration after illustration along these lines might be given, but inasmuch as the fundamental statement that every advance in medicine is founded on discovery can not be questioned, a great array of examples is not necessary.

However, some may be ready to ask, What has this to do with the requirements for admission to medical schools? It has everything to do with it; it is the keystone to the arch. Medicine consists in the application of scientific facts. It is the medical man who must apply these facts, and how can he do it if he be ignorant of the sciences from which they come? Without this knowledge the medical man is as helpless as a South Sea islander would be if asked to work a complicated machine. The man who is entering on the study of medicine must know the essential facts of the fundamental sciences, and what he does not know he must have the means of acquiring. To sum up, then, we may say that medical schools should require of all matriculates a knowledge of the primary and essential facts and theories of those sciences that most liberally contribute to medicine, and a sufficient knowledge of language and literature to enable him to make constant additions to his knowledge of the sciences. Possibly it will be better to discuss the language requirement first.

Certainly no one should be permitted to enter on the study of medicine if he be ignorant of his own language, its syntax and its logic. We do not mean that a hypercritical knowledge of grammatical construction, which is so pedantically aired by many teachers of English, should be required; but the medical man should be able to read and write without gross violence to the rules of grammar and so that a person of average intelligence can understand him, and it is equally important that he be able to understand what intelligent people say and write.

This is so self-evident that I need not dwell on it. Should our medical students know any other living language? This is a question about which there may be some diversity of opinion. There are many eminent men both among the scientific and practical leaders of our profession whose knowledge of language is confined to their mother tongue. This is true of some of the greatest teachers of Europe as well as of America. However, this does not render less true the statement that the man who reads easily and intelligently German and French, in addition to his native English, has a great advantage over his brother who is confined in the acquisition of knowledge to his native speech. Everything of value sooner or later reaches the industrious and intelligent reader, even when he is confined to the English language, but his more fortunate colleague will often be ahead of him in time, and less frequently in the accuracy and extent of his information, because translations are often late and frequently are more or less faulty either in scope or in accuracy. We would not say that a reading knowledge of German and French should be required for admission to all our medical schools, but it certainly should be recommended and those schools which can require it should do so.

The nomenclature of our profession is based on the Latin language to such an extent that all medical educators agree that at least two years' study of this language should be demanded of all medical matriculates.

It seems that there can be no marked differences of opinion concerning the amount of mathematical knowledge that should be required of the prospective medical student. It is to be presumed that he has adequate knowledge of arithmetic; that he knows how to solve problems algebraically, and that he understands plane geometry. Beyond this the medical student should have a short but thorough drill in plane trigonometry. Without this training physics must practically remain to him a *terra incognita*.

Physics, chemistry and biology, the last including botany and zoology, are generous contributors to medicine, and in their essential facts and fundamental theories should be fairly understood by the medical matriculate. There is probably no other subject of equivalent importance so generally disregarded in medical education, either as a requirement for admission or as given in

the course, as physics. How medical men can be fitted for the duties of the profession without any adequate knowledge of physics is a question frequently asked of us by French and German teachers, for in these countries the medical students take the thorough courses given in this subject to those who are working for the higher scientific degrees. In most medical schools in this country the most superficial courses in physics in high schools, often without any laboratory work, are accepted for matriculation, and no instruction in this branch is given in the medical curriculum, and yet a knowledge of this subject is needed in the application of all mechanical means for the correction of deformities, for the treatment of fractures and dislocations, for the study of errors of refraction, and in the use of the microscope, ophthalmoscope, laryngoscope, Finsen light, *x*-ray, etc. College or advanced physics should be either required for admission or given in the medical curriculum.

The requirement in chemistry for admission to most of our medical schools is well-nigh worthless, and the instruction in this subject and its numerous branches in our medical curricula is often of but little value, embracing, as it does, one or possibly two semesters of lectures, with demonstrations covering the whole range of general, analytical, physiologic and toxicologic chemistry, supplemented by a brief course in the laboratory of analytical chemistry. How can it be expected that one whose knowledge of chemistry is thus limited should comprehend Ehrlich's side-chain theory or have any comprehension of food principles, to say nothing of their assimilation and utilization in the human body. A knowledge of the fundamental facts and theories of general chemistry should be required for admission, and either before or after admission each student should be thoroughly instructed in the theories of organic chemistry and the general principles of physiologic chemistry and to some extent in the methods of toxicologic investigation.

The prospective medical student should have a broad and comprehensive knowledge of general biology, a subject which is now taught quite adequately only in the best high schools. This instruction should be, in part at least, given in the laboratory. This furnishes a good basis for both the morphologic studies, as histology, embryology and bacteriology, and for those of physiology and physiologic chemistry that come in the medical curriculum.

To sum up this part of the subject, we think that the following should constitute the requirements for admission for the present to our medical schools:

1. At least three years of English, including grammar, rhetoric and logic. To this a year or more of English literature might be added with advantage.
2. At least two years of Latin, including the grammar, composition and at least four books of Cæsar. We believe that four years of Latin will be all the better, but the shorter course might be permitted as a minimum.
3. We regard an easy reading knowledge of German of great value to the medical man, and if the same familiarity with French be added, when he enters the profession he will have his own indolence to blame if he does not keep abreast of professional advance.
4. Mathematics should be pursued through higher arithmetic, school algebra, geometry and trigonometry.
5. The fundamental facts and theories of physics, chemistry and general biology should be impressed by laboratory instruction.
6. The medical man should not be lacking in general knowledge and he should be expected to be informed in descriptive and political geography and in the history not only of his own country, but of the world.

Experience has shown that it is easy to get medical schools to place requirements on paper, but more difficult to have them enforced. For this reason we look with favor on the enactment of laws taking the decision on preliminary requirements out of the hands of medical faculties and placing it on official boards, and, although the official standard may be too low, as it certainly is in at least one state, its enforcement is more certainly secured. We can see no reason why our country should not have the best medical schools in the world, and if four years be too short a time to secure such a training let us lengthen the time either by requiring more thorough collegiate training of our matriculates or by adding a year to the medical curriculum. Let us elevate the profession and leave it on a higher plane than we found it.

(Signed) VICTOR C. VAUGHAN,
J. A. WITHERSPOON.

The discussion of this report was opened by PROF. RICHARD D. HARLAN, President of Lake Forest College. He said that these preliminary studies in science should be taught as pure science entirely, and that the liberal arts college is better prepared to do this than is the medical college. By delegating this work to the liberal arts college, the medical college will relieve congestion in the first year of its curriculum.

DR. S. D. VAN METER, Colorado, called attention to the fact that the majority of states require some evidence of the moral standard of the applicant; therefore, it might be well, for those in charge of deciding the question of preliminary education, to keep this fact in mind and select men who have the proper breeding to fit them for a college course.

DR. A. F. BARROW, Louisiana, said that their state board has noted the advancement of the medical education of students presenting themselves for licensure, but that they also noted an absolute disregard on the part of some medical colleges of the educational requirements for matriculation. For this reason his board refuses to recognize the graduates of two colleges. That condition of affairs might easily be corrected by the co-operative influence of the American Medical Association, through the Council on Medical Education, by requiring that entrance certificates come from somebody, such as the board of medical examiners of a state, a certificate from whom will admit to a medical college.

DR. L. C. WEBSTER, Indiana, referred to the matriculation requirements of the Indiana State Board of Examiners. In order for a college to turn out good material, it must start with good material. Indiana is ready to co-operate with other bodies to attain the accomplishment of this object.

DR. S. C. BAKER, South Carolina, suggested that a knowledge of Greek is fully as essential as a knowledge of Latin, French or German; hence, it would be advisable to include Greek in the preliminary requirements. South Carolina requires of applicants for licensure evidence of graduation from a medical college of established reputation, and of possessing sufficient preliminary education, at least a first-grade teacher's certificate granted by a county or state superintendent of education.

PROF. J. H. T. MAIN, Grinnell College, proposed offering an option between Latin and Greek. The latter is a creative language and the fundamental terms in anatomy, bacteriology, chemistry, etc., are absolutely Greek. Hence there is good reason why, if emphasis is put on any ancient language, there should be an option between Latin and Greek.

DR. G. W. WEBSTER, Illinois, said that, while there has been much talk about raising standards, no real standard has as yet been established.

The report was also discussed and commended by Drs. J. M. Dinnen, Indiana; H. E. Currey, Oregon; H. M. Wheeler, North Dakota; F. W. Powers, Iowa, and A. B. Somers, Nebraska.

The report of the subcommittee on curricula was presented by Dr. Charles H. Frazier.

Report of Subcommittee on Medical Curriculum.

Your subcommittee on the medical curriculum begs leave to present its report in two sections. From a study of the catalogues and from his knowledge of the training of most medical schools, Dr. Councilman found, in attempting to form what seemed to be an ideal curriculum, that there were certain difficulties in the way of putting into successful operation the best methods of medical education. These he believed to be mainly two: First, there is a lack of appreciation of the true methods of medical education; second, the relation of medical schools and hospitals, the latter practically controlling the appointments in the schools, prevent proper methods from being carried out. As a preface, therefore, to the curriculum which he proposes for consideration, he presents his views on the conditions underlying medical education.

The second section of the report, which was prepared by Dr. Frazier, contains an expression of opinions with reference to the methods of formulating a standard curriculum, and submits for consideration a curriculum which in essential particulars corresponds to that of Dr. Councilman.

Your committee has studied carefully the catalogues of the majority of the medical schools, and is struck with the great variations, not only in the arrangement of the course, but in the methods of instruction, as well as in the hours which are allotted to each. Thus, for example, in some schools anatomy is taught in the first three years, and in others only in the first year. In some only 20 lectures are given; in some 160 hours; in some only 174 hours are allotted to practical work, and in some 522 hours. In some schools no lectures are given in histology, and in others 128; in some but few hours in practical work, in others 288. Bacteriology is taught in different schools in the first, second, third and fourth years of the curriculum; in some instances with no practical work at all. In medicine the number of clinics varies from 32 to 288, and the lectures from 20 to 140; and in surgery the number of clinics varies from 48 to 288, and the lectures from 28 to 192. These data are sufficient to bring out the wide discrepancy that exists, and serve as an argument for the necessity of reform.

PART I.—BY DR. COUNCILMAN.

The object of medical education is to train individuals so that they may be of service in combating disease. Some of the individuals so trained will deal with the great questions of disease as it affects the general public; some will seek by the experimental study of disease to increase knowledge; but by far the greatest number will deal with disease in the individual. The same methods of education are applicable to all.

Tact, sympathy, generosity of character, knowledge of human nature, all qualities of the highest importance in determining the usefulness of the physician, can not be taught in the medical school. These qualities are partly innate, partly the result of culture.

The student may acquire in the medical school knowledge of disease and proficiency in the use of methods by means of which knowledge is acquired. Knowledge in medicine, as in any other branch of science which deals with things, is derived from the study by the senses of objects and the phenomena exhibited by them. The study is aided by various methods, by the use of which the territory covered by sense impressions is extended. From the interpretation of sense impressions and by analogy, hypotheses may be formed which are to be tested by experiment and future observations. The experiment is also of great value in enabling observations under known conditions to be made. The study of disease is difficult because of our lack of knowledge of the living tissues and the conditions acting on them to which the disease is due. Every day teaches us more of the complexity of the tissues and fluids of the body, and we are only beginning to understand how complex are the relations between living tis-

sues and parasites. Every case of disease presents some variations from the type, and general knowledge of a peculiar disease gives little assistance in ascertaining the conditions produced in the individual affected. Knowledge of the conditions produced in the individual by disease is essential, and can only be obtained by the methods of science.

In medical education it must be recognized that the student can acquire knowledge of the things he is studying only by means of the senses. Lectures in medical education play a very subordinate rôle. The lecture has its place, but it has to be given in connection with the student's work, and it is for the purpose of amplifying and co-ordinating the knowledge he has obtained from the study of objects by means of his senses.

The four-year course in medical schools has been generally adopted. Two of these years can be devoted to the preparation of the student for clinical work, the other two to the various classes of clinical work. The first two years present little difficulty. Their success depends on laboratory facilities and material for study, both of which can be provided, in some cases in fuller measure than in others. The difficulty comes in the last two years which are devoted to clinical work. For the proper teaching of clinical medicine, contact of the student with clinical material is essential. This can be provided only in hospitals.

The hospital must be regarded in a certain sense as a laboratory for the study of disease. The three purposes of a hospital are to provide care and comfort for the sick, to instruct others in administering to their care and comfort, and to increase knowledge of disease. None of these purposes can be efficiently carried out without the study of disease. In very few hospitals in this country does a medical school have any control of hospital appointments. Where there is such control both medical school and hospital show a greater degree of efficiency than in the case where the hospital, through the men who have clinical material in their hands, controls the appointments in the medical schools. In hospitals not vitally connected with medical schools, the prevalent method of making appointments and promotions is opposed to the attainment of the highest degree of efficiency in teaching and in the care of patients. It must stand to reason that the best men, who are trained and skilled in the most exact methods, who base their procedures for the relief of disease on knowledge rather than on conjecture or intuition, and who take infinite pains, must obtain the best results.

Present methods as followed by most hospitals do not lead to the best training and best development of men. As a rule, only the lowest positions in the out-patient departments of a hospital are filled by introducing new men into the hospital. Young men are chosen for these positions, and promotion is based on seniority of service. There is so little control exercised over the methods in these minor places that it is impossible for efficiency of service to be fully recognized. If the young man does his work according to the traditions of the hospital and does not make himself obnoxious to his superiors by too great a degree of activity or independence of thought and action, his promotion is sure. In the out-patient department the number of patients is usually too great for exact work to be done. Lax methods prevail, and the young man in his best years learns lax methods and does things by routine. By constant promotion control of clinical material for certain months of the year is obtained, and then the hospital appointee becomes a candidate for important teaching positions in the medical schools. By this time he usually possesses a lucrative private practice, his youthful enthusiasm is past, and the training which he has received has not been conductive to the best development.

The medical school should possess the power of appointment in hospitals, and the appointments should be made on merit alone. If it is not possible to obtain control of all appointments of a hospital, university clinics, consisting of a certain number of beds controlled by the medical school, should be established. The hospital will surely benefit by the introduction of new men with new ideas, and who have developed in different surroundings. Such men must be of recognized ability, for no other consideration should dictate their appointment by the medical school. The future and the highest development of medical education in this country is wholly controlled by hospital trustees.

The efficiency of laboratory teaching in most medical schools in this country far surpasses clinical teaching, and this is due to the fact that hospitals can not be used in the best manner for the study of disease. The greater ease of teaching the branches of medical education which lie outside of hospital work has led to giving relatively too great prominence to anatomy, physiology and pathology. The same discipline which is given in these branches can be given in clinical medicine, with the advantage that the student in clinical medicine has constant exercise in methods which he must constantly use when he leaves the medical school. We are beginning to see that the same method of study, placing the student in close relation with the objects studied, which is used in anatomy, physiology and pathology, can be used in clinical teaching, and the clinic can never reach its true dignity and importance until this method is adopted. Disease can not be studied at long range. The tendency on the part of the hospital trustees to discourage the study of disease in the wards is to some degree passing away, and it is to be hoped that in the future they will come to see that the greatest good accomplished by a hospital can take place only when the hospital appointments are given in the interests of medical teaching and its wards are fully used for the study of disease.

In submitting this curriculum of study, I have been guided in part by personal knowledge of what has worked well, and in part by the views as to the division of subjects and time in medical schools in which teaching is efficient. In the first two years of study I have given almost the arrangement of studies which is used in the Harvard Medical School and which has given good results. In this arrangement the work of the student is on one subject at a time. He studies the form and structure of the material in anatomy, the function in physiology, the disorders of form and function and their causes in pathology. The second half of the second year is devoted chiefly to the study of clinical methods, which will be used in the third and fourth years. The advantages of this method of concentrating study on one subject are: 1, It is found to work well; 2, the student keeps up his interest better and makes better progress; 3, teaching and study can be made more thorough; 4, the work of individual students can be better controlled; 5, it facilitates research by the teachers by giving time apart from teaching which can be devoted to research; 6, it is economical of time, the student loses much time in other methods by frequent changes of place and subject; 7, it is economical of space, the same teaching laboratories can be used at different times of the year for different subjects. One of the disadvantages urged against it is that the student memorizes a subject and then without constant repetition forgets it. If it were possible to teach medical science by exercises based on the memory this might be so.

I have regarded the year as giving 1,245 hours of work, allowing for the usual holidays and leisure hours in the day. In addition to the regular curriculum, special lectures or courses of lectures on subjects on which the lecturers have special knowledge should be encouraged. Such lectures can be attended by both teachers and students. In clinical studies I have included large amphitheater clinics in medicine, surgery and neurology. Such clinics could take the place of didactic lectures in these subjects. I have also included a weekly demonstration in pathologic anatomy. In such demonstrations the relation between the clinical phenomena and the lesions demonstrated should be held in view.

It is essential that every student must have during the third and fourth year a place in a laboratory and be provided with a microscope and clinical reagents in order that he can make at his convenience the necessary examinations of the products of disease in cases which he is studying. By making such work a matter of routine he obtains a proper reliance on methods, and will continue in them after leaving the medical school.

FIRST YEAR.

First half year: Anatomy (organology, histology, embryology), 624.
Second half year: Physiology, 384; physiologic chemistry, 240.

SECOND YEAR.

First half year: Pathology (gross and microscopic), including bacteriology and parasitology, 624.
Second half year: Physical diagnosis, 148; Pharmacology and toxicology, 126; Obstetrics (including histology and pathology), 242; hygiene, 48; surgical pathology, 60. Total, 624.

THIRD YEAR.

Medicine: (a) Clinics, 64; (b) O. P. D., 248; (c) clinical microscopy, 288; (d) practical therapeutics, 48.
Neurology: (a) Clinics, 32; (b) O. P. D., 181; (c) neuropathology, 45.
Surgery: (a) Clinics, 64; (b) O. P. D., 200; (c) operative surgery on animals, 14.
Obstetrics: (practical work). Six cases for each student.
Special lectures on general medicine (fever, edema, comparative etiology of infectious disease, etc.), 32.
Pathology: (Demonstrations of gross material), 32.

FOURTH YEAR.

Medicine: (a) Clinics, 32; (b) wards and laboratories, 330.
Psychiatry: (a) Lectures, 16; (b) ward visits, 48.
Pediatrics: (a) Clinics, 32; O. P. D., 32.
Dermatology: (a) Clinics, 32; (b) O. P. D., 80.
Surgery: (a) Clinics, 32; (b) wards and operating room, 180; (c) G. U. Surg. Clinics, 32; (d) G. U. Surg. O. P. D., 64; (e) Orthopedics (lectures, clinics or demonstrations), 32.
Obstetrics: (a) Obstetrical wards, 32.
Gynecology: (a) Gynecologic pathology, 32; (b) wards and operating room, 64.
Ophthalmology: (a) Lectures, 16; (b) O. P. D., 32.
Otology: (a) Lectures, 16; (b) O. P. D., 32.
Laryngology: (a) Lectures, 16; (b) O. P. D., 32.
Pathology: (Demonstrations of gross material), 32.

PART II.—BY DR. FRAZIER.

There has never been a decade in the history of medical education in which more time and thought has been given to the subject than during that which has just passed. This has been due, in part, to the healthy rivalry that exists between the various medical schools; in part to the enormous additions which have been made to the material equipments and endowments, and in part to the stupendous increase in the sum of medical knowledge, necessitating a complete reorganization of the methods of instruction.

It may be truthfully said that on the essential points in the construction of medical curriculum the minds of those who have given to the subject their especial attention are beginning to crystallize. It is therefore possible to present a scheme for an ideal course to which few will take exception in any of its essential particulars. One of the most important duties of this Council, second only to the adoption of a minimum standard of requirements for admission to medical schools, is to bring to the attention of medical schools the desirability of having a uniform standard, and having framed one, the Council should use its influence through the proper channels to secure its adoption.

To make a standard curriculum possible, two questions must be settled at once: what subjects must be taught in each of the four years, and how much time should be devoted to each and what disposition should be made of the allotted time.

The assignment of subjects in the first two years will be a matter of little difficulty whether the concentration or the semi-concentration plan is adopted. The logical arrangement would place in the first year anatomy and chemistry, with, possibly, bacteriology, and in the second year physiology and pathology. In the second half of the second year the student, in addition to the above studies, should receive a thorough course in physical diagnosis in order that he may be able to begin intelligently his clinical observations at the beginning of the third year. The course in hygiene and pharmacology may be included in this period.

The third year should be given over in a large measure to clinical studies; it should be regarded as the period of transition from the practical exercises in the fundamental subjects of the first two years to the purely practical exercises of the clinical subjects of the last year. In this year should be included the systematic courses in medicine, surgery and obstetrics, partly didactic and partly clinical, the latter including as much practical instruction in the wards and out-patient departments as time will allow. It should include, further, courses in which

the fundamental subjects are elaborated in their relation to the clinical subjects; thus surgical or applied anatomy, surgical physiology and surgical pathology, neuropathology, gynecologic pathology and medical pathology, if that term could be applied to a critical study of the findings at the autopsy, and the bearing they have on the conditions noted in the clinical record. These courses to consist in clinical as well as laboratory demonstrations, and exercises so arranged with relation to each other that the student is trained to associate the nature of the lesion with the clinical manifestations of the disease. In the third year should be included also a thorough course in the clinical laboratory, in order that the student may be thoroughly versed in laboratory methods before he is called on to put them in practice in his fourth year. To summarize the work of the third year, it embraces all the systematic instruction and some of the practical instruction in the three major subjects, medicine, surgery and obstetrics, together with the applied sciences, pathology as applied to medicine, surgery, gynecology, neurology, applied therapeutics and practical applications of laboratory tests to the body fluids, secretions and excretions.

The last or fourth year should be spent entirely in the hospital, a considerable portion of it in the wards, and the remainder in the laboratories, operating room, out-patient departments and to some extent the clinical amphitheater. Such a system is only possible where the school has under its control or at its disposition at least one large general hospital. The courses in medicine, surgery and obstetrics are continued, and to these are added neurology and pediatrics. While the two latter are not to be rated of equal importance with the three former subjects, they are too important to be classified with the specialties, and the time to be devoted to these should be prescribed accordingly.

I have as yet made no mention of the so-called specialties. To my mind they constitute the only bugbear in the medical curriculum. Just when they should be taught and how much time should be devoted to each is one of the most difficult questions to decide. Whatever disposition is to be made of them, one principle should always be adhered to: They should never be allowed to encroach on or to crowd the major subjects. Better, by all means, regard them as postgraduate, and require the student to add one-half or one more year to his course of study than to allow them to curtail his instruction in any of the major subjects. With reference to the specialties, I believe a medical school has discharged all its duties to the student as an undergraduate when it has taught him to distinguish between the conditions which he should be able to treat himself and those for which he should call on the services of a specialist there is enough time in the third and fourth years to give the requisite amount of instruction. The student should have some knowledge of each of the specialties and therefore I disapprove of a system of electives which enables him to elect some studies to the exclusion of others. Since there is not enough time in the fourth year to crowd in the courses all the specialties, these courses must be divided between the third and fourth years. Thus in the proposed curriculum (at Pennsylvania) we have assigned the courses in otology, larynogology, dermatology and ophthalmology to the third year, at the same time affording opportunities for students who may be especially interested in one or the other subjects to continue his studies for a limited time of the fourth year in the out-patient department. To this extent only is specialization tolerated as an undergraduate system. There remain of the specialties, orthopedic surgery, genitourinary diseases, gynecology and psychiatry; all these may be included in the curriculum of the fourth year.

In reviewing the statistics which have been collected from the hundred or more medical schools of the country one is struck more by the disparity between the time allotted to the similar subjects in the various schools than with the variation in their sequence; while it is practically impossible to ascertain from the majority of catalogues the precise number of hours of instruction given to each student in the various subjects, sufficient information from this source can be secured to confirm the above statement. This disparity is due, in part, to differences of opinion, in part to the limitations necessary because of inadequate facilities, and partly to certain factors which may be operative in one school and not in another. Among the latter may be included certain traditions and customs, which are not always easy to overcome, of the undue influence of an ultra conservative element in the governing body, the influence of an active, ambitious director in one department, and that of an indifferent director in another.

Unhampered in any way whatsoever, it would not be a difficult task to arrange the schedule of instruction. To do this one should first determine the relative importance of the subjects. Thus on a basis of 100 per cent., what percentage of time should be devoted to this as compared with that course, or to this group as compared with that group of studies? Having answered this question the remainder of the problem could be worked out almost with mathematical precision.

Of equal importance with proper apportionment of time to each subject is the establishment of a ratio between actual practical work; that is to say, work in which each student actually participates in an exercise, whether it be in the laboratory or in the hospital, and that in which the information is conveyed to the student through the medium of an instructor, whether by the didactic lecture, by the so-called clinical lecture or by a demonstration. It should not be a difficult matter to establish at least a minimum ratio, and once established the ratio should be obtained. In other departments of a great university, as in the graduate schools, the student in course for the degree of doctor of philosophy must give evidence that he has taken so many major or minor courses and each of these courses represents so many hours, and the proportion of laboratory to didactic work, or, as may well be paraphrased, the direct to the indirect method of instruction, is clearly specified. Thus in a course covering twenty hours a week, at least sixteen of these must be spent in the laboratory, representing a ratio of 4 to 1. It should be quite as possible to fix on a ratio in the courses for a medical degree. There might be some variation in the ratio according to whether we are dealing with the fundamental sciences or the clinical subjects, but once the proper ratio is established, we will have a basis on which to construct each course.

It is scarcely necessary to point out the advantages of a standard uniform curriculum. Its adoption would be a great step toward establishment of interstate reciprocity; it would stamp the medical degree with a definite and uniform value; it would unquestionably raise the standard of medical education to a higher average of efficiency. Not the least among the advantages to be derived from the adoption of a standard medical curriculum would directly affect the medical student, in that it would enable him to migrate from one school to the other. By receiving credit for the work which he has accomplished, he could continue his studies in any other school of the country. Such an elective system would make it possible to take any one, two, or group of subjects wherein he thought he could do so to advantage. Beginning his studies in a school with a splendid equipment for teaching the fundamental subjects, though in a small community, he could pass on to another where, because of the larger population, there were better opportunities for instruction in the clinical branches. This is one of the features of education in the German university which we could well afford to introduce into the medical institutions of this country. This practice is not at all uncommon in the graduate schools of other departments. Why should this privilege not be accorded to the medical student? Apart from these purely scholastic or technical advantages, it must be admitted that a migratory system would do much toward correcting the tendencies toward provincialism, and in more ways than one give to the student greater opportunities of observation and a very much broader view of medicine; he would at the same time enjoy the refreshment, physical and intellectual, that would come with a change of environment and of teachers.

Assuming that there are 32 weeks of actual study, not including the examination period, and allowing two weeks for holidays, the total amount of time would amount to 1,200 or 1,300 hours, or an average of 1,250 hours per year. These may be prescribed as follows:

First year: Anatomy, 60 per cent.; chemistry, 30 per cent.; bacteriology, 10 per cent.

Second year: Physiology, 30 per cent.; pathology, 40 per cent.; physical diagnosis, 10 per cent.; hygiene, 5 per cent.; pharmacology, 15 per cent.

Third year: Medicine.—1, Clinics and lectures; 2, clinical laboratory; 3, ward classes; 4, O. P. D.; 5, practical therapeutics; 6, recitations, 40 per cent. Surgery.—1, Surgical pathology and physiology; 2, surgical anatomy; 3, clinics and lectures; 4, O. P. D., including minor surgery; 5, recitations, 35 per cent. Obstetrics.—Lectures, clinics and practical work, 5 per cent. Pathology.—Autopsy and demonstrations of gross material, 5 per cent. Ophthalmology.—Clinics and O. P. D., 2½ per cent. Otology.—Clinics and O. P. D., 2½ per cent. Rhinology.—Clinics and O. P. D., 2½ per cent. Dermatology.—Clinics and O. P. D., 2½ per cent. Total, 10 per cent.

Fourth year: Medicine.—1, Clinics; 2, clinical conferences; 3, ward classes; 4, ward work; 5, O. P. D.; 6, laboratories, 40 per cent. Surgery.—1, clinics; 2, clinical conferences; 3, ward classes; 4, ward work and operating room; 5, O. P. D.; 6, laboratories, 35 per cent. Obstetrics.—Practical work. Pedriatics.—1, Clinics; 2, ward work; 3, O. P. D., 10 per cent. Neurology.—1, Clinics; 2, ward work; 3, O. P. D., 10 per cent. Gynecology.—1, Clinics; 2, ward work, 5 per cent. Orthopedic Surgery.—1, Clinics; 2, ward work and O. P. D., 2½ per cent. Genitourinary Diseases.—1, Clinics; 2, O. P. D., 2½ per cent.

DR. WILLIAM C. WOODWARD, D. C., called attention to the fact that the Association of American Medical Colleges has adopted standards for entrance to medical colleges and for medical curricula which might serve as a basis.

DR. G. B. YOUNG, U. S. P. H. and M.-H. S., suggested that more time be devoted to hygiene, inasmuch as applicants for this branch of the government service are woefuly deficient in that subject.

The report was also discussed by Drs. George W. Webster, Illinois, and A. Vander Veer, New York.

What Shall the Standard Be for Recognition of Medical Colleges and How Shall Such Standard Be Determined?

DR. J. M. DODSON, Illinois, in opening the discussion on this subject, spoke briefly of the deficiency of state board examinations, and urged greater severity and more comprehensiveness in determining the applicant's fitness to practice medicine. As to entrance requirements, he proposed to add two years of collegiate training to the high-school training, so as to make room in the medical curriculum by eliminating such subjects as chemistry, physics and general biology, which can be taught to better advantage in colleges of liberal arts. The college term should be uniformly increased to nine months. Under the present arrangement students loaf for five months or so, or are engaged in some breadwinning occupation. This is a distinct loss of time, because after returning from a vacation it takes the student some time to get under way again.

As to a standard curriculum, it is needed, but educators must keep in mind the fact that students must have time for preparation, study and reflection. For each hour of recitation work the average student should have two hours of preparation, and for each two-hour laboratory or clinic period he should have one hour of preparation. Therefore, a curriculum ought to be prepared on the basis of study periods.

Schools to be recognized should have adequate equipment, adequate laboratories and suitable hospital facilities; they should have competent instructors, and those engaged in teach-

ing the subjects embraced in the first two years of the medical curriculum ought to give their whole time to teaching and research work. The only way to determine that colleges are doing good work is by actual and efficient inspection, to be conducted under the auspices and by the authority of the state licensing and examining bodies.

DR. A. F. BARROW, Louisiana, proposed to raise the standard of medical education by raising the standard of medical preparation. It is most important what shall be required of the applicant for matriculation in a medical college. When medical colleges will refuse to matriculate all but those possessing the education necessary to pursue intelligently the study of medicine, two-thirds of the colleges will be eliminated.

DR. L. C. WEBSTER, Indiana, agreed that inspection of medical colleges would be most valuable, but a minimum standard of equipment should be agreed on so that the boards would have some guidance in their action.

DR. S. D. VAN METER, Colorado, suggested strengthening the power of the boards to enforce not only standards of education and equipment, but also the granting of licenses. Every applicant for licensure should make affidavit that he has complied with the preliminary requirements of the board, and that the college from which he has graduated enforces these requirements, making it a penalty of forfeiture of his license and penal servitude of ten years for violation of the law.

DR. G. C. SAVAGE, Tennessee, spoke of the conditions in the South as compared with those of the North, and the work of the college associations and its recognition by the various state boards. He appealed to the committee in the name of the southern medical colleges not to recommend any advancement in preliminary requirements or curriculum until two years hence, because the South is not ready for it. He said the inspector of medical colleges should not be an individual, because on making an unfavorable report, a suit might be filed against him. Therefore, if an inspector is appointed to look into the equipment and teaching facilities of institutions he must represent a corporate body, and there is no better than the American Medical Association.

The Relation Between the College of Liberal Arts and the Medical School.

PROF. J. H. T. MAIN, Grinnell College, Iowa, discussed this question from three propositions: 1. The tremendous increase in the field of knowledge. 2. Increasing demands made by the public on educated men. 3. Comparative inadequacy of individual men to meet these demands.

DR. L. F. BARKER, University of Chicago, considered the question from the standpoint of the medical school, the college of liberal arts, and the state examining and licensing boards. He said that the state boards prescribed too literally the subjects which men must take in the medical school. Such regulations deprive students of the possibility of election, and it also makes it impossible for colleges to develop their curriculum in accordance with progressive ideas of medical education.

Reciprocal Registration.

DR. A. VANDER VEER, New York, discussed in full the methods adopted by the University of the State of New York for establishing reciprocity.

DR. GEORGE W. WEBSTER, Illinois, referred to the heterogenous conditions existing and the large number of associations dealing with this problem from different view points. Reciprocity may be brought about more rapidly than is being done at present by education and evolution, by harmonizing discordant elements. All associations concerned with elevating the standard of medical education are working toward this end, but each body sets up its own standards and ignores those of others. He urged that the Committee on Medical Education make a persistent effort to obtain the co-operation of all the other associations and to merge them into this committe, which, representing the American Medical Association, is the proper organization to do this work. Instead of having many organizations with varying standards, there would be a single organization, with one standard, carrying on this work under the guidance of the American Medical Association, which is ready to carry on this kind of work along these lines. The committee should be empowered to visit every medical college in the country, and should furnish state boards with all the information they may desire. As a rule, state boards are not very familiar with the laws of other states, and this committee could furnish the boards with the necessary information. In that way more could be done in five years to bring about reciprocity than can be done under present conditions in twenty-five years.

DR. WILLIAM F. BAILEY, Kentucky, said that reciprocity must come through the influence of the American Medical Association. If the Council on Medical Education will go before the profession and urge better entrance qualification and better courses of study in medical colleges, it will eventually bring about the desired result.

Co-operation Between the American Medical Association and the Licensing Boards.

DR. L. S. MCMURTRY, President of the American Medical Association, briefly reviewed the history of the Association, its scope, the work done by it, and its power as a factor in medical education as well as in professional standing. In connection with this question it is necessary, he said, that the Association exert its influence in establishing and developing a strong public sentiment in the medical profession that will co-operate in establishing the advances desired.

DR. GEORGE H. SIMMONS, Secretary of the American Medical Association, said that the real first step that will result in practical benefit to all concerned was the creation of the Council on Medical Education, whose function it is to bring together and co-ordinate various enterprises so that definite, tangible results may be obtained. In order to bring the various boards together it is necessary to have some means of communication that is accessible to all, and the American Medical Association will be ready to assist in this work. There must be a central body through which all the licensing boards can work, a body something like the Medical Council of England, whose visitors inspect all the colleges. The boards can not pay to have this work done, and the college associations can not afford to have it done very long.

DR. VAN METER, Colorado, urged to place in the hands of the American Medical Association certain powers, and on behalf of the Colorado state board promised its co-operation in this work. He urged that the committee prepare a treatise for state examining boards on the following subjects: 1. Range of the police power of licensing boards. 2. Methods of procedure in conducting the trials of offenders against the medical laws. 3. Salient points relating to the reliability of evidence. 4. Best methods of examining the credentials of applicants for licenses to practice medicine. 5. Standard of credentials to be accepted as proof of moral and educational qualifications without a technical examination. 6. Detailed report on medical colleges and state boards which maintain a high standard. 7. Suggestions for the preparation of examination questions and for the exclusion of "catch" questions. 8. Suggestions for the improvement of the personnel of examining boards.

DR. WILLIAM C. WOODWARD, D. C., said that no amount of education would result in reciprocity unless legislation is forthcoming, and that is the field for work for the American Medical Association in determining what legislation is necessary and desirable, so that state boards will have a basis for work.

BOSTON MEDICAL LIBRARY MEETING.

Regular Meeting, held April 5, 1905.

FRANCIS B. HARRINGTON, M.D., Chairman.

SYMPOSIUM ON RESULTS IN NON-TRAUMATIC SURGERY OF THE BRAIN AND SPINAL CORD.

Observation on the Actual Results Obtained at the Massachusetts General Hospital.

DR. ERNEST A. CODMAN explained that the figures which he presented were not selected cases but the ordinary record of

the hospital and that as in several other papers read before these meetings during the past two years, the figures are available only by the courtesy of the staff. He suggested that probably better results could be attained if some one individual surgeon, specially interested in this branch of surgery, could have charge of all such cases. Various other elements will also contribute to better results: Better diagnosis not dependent on the long delay of the therapeutic test of potassium iodid; more frequent postmortem examinations; the prevention of shock and hemorrhage by the use of the pneumatic rubber tourniquet and the dental engine; the prevention of sepsis formerly so common and fatal. The statistics presented were as follows: Class 1.—Operations to remove tumor if possible, and if not, to relieve pressure symptoms, headache and failing eyesight: 28 cases, 7 deaths within two weeks, 11 patients not improved, 7 improved, 3 not traced. Class 2.—Operations to relieve pressure symptoms, headache and failing eyesight: 8 cases, 4 deaths within two weeks, 2 patients improved, 2 not traced. Class 3.—Operations for the relief of epilepsy, usually post-traumatic: 21 cases, no deaths within two weeks, 12 patients not improved, 9 improved. Class 4.—Operations for the drainage of cerebral abscess: 6 cases, 5 patients died within two weeks, 1 was improved. The operation for epilepsy was usually to remove an old depressed fragment or to separate adhesions of the dura. The abscesses were chiefly mastoid. Dr. Codman considers it better to attempt palliative rather than radical operations, for the latter are very difficult and the former give relief. He also advises operation at a distance from the motor areas, which will give the same relief from pressure symptoms and avoids the danger of injury to the cortex or of hernia cerebri. Lumbar puncture as a means of relief of pressure has not been successful. Of 4 cases 2 patients died on the table and 1 while ether was being administered. Only three attempts were made to remove a tumor. Two patients died at once and in the other the tumor recurred.

DISCUSSION.

DR. JAMES J. PUTNAM said that there was no complete cure in any one of the 36 cases in Classes 1 and 2, but 9 patients were much relieved. One patient who had a sarcoma weighing one pound had complete relief for a year. Others were able to be about or were so far relieved that their care was much easier. We have reason to hope for better results in the future. Operation for epilepsy is beneficial in a fair proportion of cases.

Results at the Boston City Hospital.

DR. WILLIAM N. BULLARD reported 44 cases, 39 being intracranial and 5 intraspinal. The intracranial included cases of epilepsy, headache, unconsciousness and intracranial growth, 4 of these latter being cerebral and 2 cerebellar. He confined his paper, however, to a discussion of the cases of epilepsy, 18 in number; 3 patients could not be traced. Twelve cases were traumatic; 8 patients were relieved by operation; 3 were not relieved and in 1 the result was doubtful. Three cases were non-traumatic; 2 patients were relieved by operation and 1 was not relieved. Four cases of cysts were found, 2 antemortem and 2, both multiple, postmortem. Results of operation for epilepsy may be long delayed.

Removal of Tumor of the Cerebrum and of the Cerebellum.

DR. F. B. LUND said that the technic of craniotomy has been much improved, and that it is often possible to remove cerebellar tumors. The dura should not be sutured. He reported 10 operations; 6 of the Boston City Hospital and 4 of his own. Six were for the removal of tumors of the cerebrum and 4 for tumors of the cerebellum. Of the 6 cerebral operations 3 patients died on the table, of whom 2 were found to be inoperable at autopsy. One patient was improved; 1 was not improved. Three cerebellar operations were fatal, but the patients all had delayed operation long after it was advised.

DR. W. B. ODIORNE reported 3 cases of intraspinal tumors operated on by Dr. J. C. Warren. Two were extramedullary and operable, 1 intramedullary and inoperable. In the first one a tumor at the level of the ninth dorsal vertebra was easily freed.

The Findings at Autopsy in Cases of Brain Tumor, and Their Bearing on the Selection of Operable Cases.

DR. GEORGE L. WALTON said that cases may be classed as: 1, operable; 2, inoperable; 3, doubtful. 1. This includes chiefly cases of tumor of the dura—endotheliomata. 2. This includes tumors involving deeper structures. 3. Tumors which are near the surface and in accessible locations. He has studied 171 cases of autopsy reports from the Massachusetts General Hospital, Boston City Hospital, other hospitals and his own records not elsewhere reported, and has included other reports to make a total of 374 cases. Of these 25 were operable, 300 inoperable and 49 doubtful. In searching for a tumor, exploration on the surface is wiser than puncture, which is only valuable for a cyst and should always be preceded by the surface exploration. Gumma is rare. It has not been met at autopsy at the Massachusetts General Hospital since 1896. He urged surgeons to persist in the use of the best methods of diagnosis, location and operation and not to be discouraged by a single failure.

Results of Operation in Mastoid Abscess.

DR. FRED L. JACK spoke as an otologist on the results of operation on mastoid abscess. He reported 14 cases occurring at the Massachusetts Eye and Ear Infirmary, of which only one patient recovered, and 15 at the Massachusetts General Hospital of which only one recovered. He enters under the lobe of the ear, through the temporo-sphenoidal lobe, from one-fourth to one inch below the surface. He believes that imperfect drainage is responsible for some of the failures and advocates a rubber drainage tube.

Brain Tumor Operated On.

DR. JOHN R. BOTTOMLEY reported from the Carney Hospital 12 cases of brain tumor; 10 patients were operated on; 6 were trephined, 2 trephined and tapped, and 2 trephined and tumor removed. There were 5 deaths within a few days or months, 2 patients had no relief and 3 were relieved of pressure symptoms. There were 4 cases of cysts. All patients were operated on and the cysts drained; 1 died, 3 were relieved. There were 10 operations for epilepsy; 8 patients were trephined and 2 were trephined and drained. There were no deaths. Two patients were much relieved, 5 were slightly relieved and 3 were not relieved. One patient with spinal tumor was operated on with much relief. One patient with chronic pachymeningitis was operated on with relief. It is advisable to use potassium iodid for a definite period, but few cases are helped by this method.

Cerebellar Tumors and Intraventricular Pressure.

DR. MORTON PRINCE said that cerebellar tumors cause intraventricular pressure and require tapping. He urged the necessity of surgeons being better neurologists so that they may know the reasons for their technic. Much harm results from indiscriminate probing and no good.

TENNESSEE STATE MEDICAL ASSOCIATION.

Seventy-second Annual Meeting, held at Nashville, April 11-13, 1905.

(*Concluded from page 1391.*)

Treatment of Hypertrophied Tonsils.

DR. J. F. HILL, Memphis, entered a protest against the promiscuous and wholesale excision of children's tonsils. There are three kinds of diseased tonsils: First, a tonsil which is constantly swollen, red and easily irritated. This tonsil is of a specific, scrofulous, or tuberculous nature. 2. A tonsil which is diseased in the interior, which forms occasionally an acute abscess. 3. A tonsil with ulcers on the surface, which may be either indolent or active. Tonsils under the first head should be treated by complete excision. Tonsils of the second variety are diseased internally; have openings leading from the surface to the interior, and at the bottom of these openings there is a quantity of fungous tissue, with the formation of acute abscesses. These openings to the tonsils allow the escape of

Number.	Name of College.	Alabama.		Arizona.		Arkansas.		California.		Colorado.		Connecticut.		Delaware.		D. of Columbia		Georgia.		Idaho.		Illinois.		Indiana.		Iowa.		Kansas.		Kentucky.		Louisiana.		Maine.		Maryland.		Massachusetts.		Michigan.		Minnesota.		Mississippi.		Missouri.		Montana.		Nebraska.		Nevada.		New Hampshire		New Jersey.		New Mexico.	
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	ALABAMA.																																																					
1	Birmingham Medical College.—R	3	0																																																	
2	Medical College of Alabama.—R	34	1																																															1	0
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3	Medical Department Arkansas University.—R					1	1																																			1	3									
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5	Medical Department University of California.—R							34	2	1	0																																									
6	California Medical College.—E							3	2	4	0																																								
7	Hahnemann Medical College of the Pacific.—H							7	1	1	0																																								
8	College of Physicians and Surgeons, San Francisco.—R							16	11	2	0																																								
9	Oakland College of Medicine and Surgery.—R																																																	
10	College of Medicine, University of Southern California.—R			3	1			22	4											0	1																													
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11	Denver and Gross College of Medicine.—R			1	0	1	0	1	0	28	0									3	0					1	0	1	0																					
12	Denver Homeopathic College.—H									6	0																																							
13	Colorado School of Medicine.—R									12	0																													1	0									1	0
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14	Yale University, Department of Medicine.—R											21	2																							3	0									1	0		
	DISTRICT OF COLUMBIA.																																																
15	Columbian University, Department of Medicine.—R							0	1	1	0					43	0					1	0	1	0					1	0	1	0																	
16	Georgetown University, School of Medicine.—R							1	0	2	0					15	2					1	0	1	0																							1	0		
17	Howard University, Medical Department.—R	0	2					1	0							5	6																													1	0		
	GEORGIA.																																																
18	Atlanta College of Physicians and Surgeons.—R	3	0			1	0			2	0							24	0																														
19	Georgia College of Eclectic Medicine and Surgery.—E	2	1															15	0																														
20	Medical College of Georgia.—R									1	0							27	0																														
	ILLINOIS.																																																
21	American Medical Missionary College.—R							1	0	5	0											3	0			1	0																					1	0		
22	Bennett College of Eclectic Medicine and Surgery.—E																					10	0	1	0	1	0													1	0								
23	Chicago Homeopathic Medical College.—H			1	0			2	0	5	0											28	1	5	0	0	4	1	1	1	0									1	0								
24	College of Medicine and Surgery.—Ph.M																					11	5																	1	1								
25	College of Physicians and Surgeons, Chicago.—R	1	0					8	2	12	0									2	0	143	2	8	1	13	3	4	0							3	0	11	2			1	0	2	0				
26	Hahnemann Medical College and Hospital.—H									8	0	0	1									38	1	2	0	4	0					1	0			1	0	4	0					1	0				
27	Harvey Medical College.—R	1	0							1	0											16	2	1	0																								
28	Hering Medical College.—H									3	0									0	1	9	0	1	0	1	0	3	0					1	0									1	0				
29	Illinois Medical College.—R	1	0			0	1	1	0	2	0											29	3	9	0	3	0							0	2					1	1								
30	Jenner Medical College.—R																					18	0			0	2																			0	2		
31	Northwestern University Medical School.—R			1	0			6	1	10	0									2	0	75	0	1	0	18	0	4	0									7	0							1	0		
32	Rush Medical College.—R			1	0	2	0	14	4	27	0					1	0			3	0	130	2	11	1	17	0	6	1									7	0					2	0	1	0		
33	National Medical University																					17	6			2	0					1	0											0	2				
34	American College of Medicine and Surgery.—E									0	1											19	2	1	0																								
35	Dearborn Medical College, Chicago.—R																					18	0																								
	INDIANA.																																																
36	Central College of Physicians and Surgeons.—R			1	0			0	1													1	0	8	0																								
37	Medical College of Indiana.—R					1	0			5	0											4	0	13	2					1	0																		
38	Physio-Medical College of Indiana.—Ph.M					1	0																	3	0																								
39	Eclectic Medical College of Indiana.—E																							2	0																								
40	Fort Wayne College of Medicine—R									1	0													1	0																								
41	Indiana University School of Medicine.—R							1	0																																									
	IOWA.																																																
42	Drake University College of Medicine.—R									2	0															13	1																								
43	Keokuk Medical College of Physicians and Surgeons.—R									10	0											3	0	1	0	38	7																			1	0				
44	Sioux City College of Medicine.—R									1	0															12	0																								
45	State University of Iowa, Homeopathic Medical Dept.—H									1	0															8	1																								
46	State University of Iowa, Medical Department.—R							0	2	2	0											2	0			49	3																								
	KANSAS.																																																	
47	College of Physicians and Surgeons of Kansas City.—R																																																
48	Kansas Medical College.—R															1	0			0	1							1	0																				
49	School of Medicine, University of Kansas.—R																																																
	KENTUCKY.																																																
50	Hospital College of Medicine.—R	0	1							1	0											0	2	7	6					63	2																		
51	Kentucky School of Medicine.—R			1	0	1	0	0	1	5	0					1	0			1	1	3	0	9	1					36	0	0	1			3	0					1	0						
52	Louisville Medical College.—R	3	0			1	0			2	0									1	0	4	1	4	2			2	1	29	1	3	0																
53	Louisville National Medical College.—R																																																
54	Southwestern Homeopathic Medical College.—H									1	0																			7	0																		
55	Medical Department, University of Louisville.—R					0	1	2	2	14	0											0	1	10	2			0	1	35	0	1	1																
56	Kentucky University, Medical Department.—R					1	0													0	1			11	2					22	0	2	1			1	0					2	1	1	0	1	0		
	LOUISIANA.																																																
57	Flint Medical College of New Orleans University.—R					1	0																							4	5									1	5								
58	Tulane University, Medical Department.—R	8	1	1	0			0	1	1	0							1	0											1	0	55	0							13	3								
	MAINE.																																																
59	Medical School of Maine, Bowdoin College.—R																															21	5			2	0							1	0		
	MARYLAND.																																																
60	Baltimore Medical College.—R					1	0	1	0	3	0	3	6									3	0			1	0			1	1	1	0	2	0	15	5	16	0					1	0			3	0	7	0
61	Baltimore University School of Medicine.—R									5	0			0	1															1	0			2	0	0	14	2	2									3	4
62	College of Physicians and Surgeons of Baltimore.—R					1	0	0	1	2	0	5	3					1	0			1	0	2	0	1	0					1	0	1	2	17	11	10	1					1	1			5	0
63	Medical Department, Johns Hopkins University.—R							3	0			1	0			2	0	3	0			4	0											1	0	8	0			2	0							1	0
64	Southern Homeopathic Medical College.—H													1	0																																	
65	University of Maryland, School of Medicine.—R			1	0	1	0			5	0	0	1	1	0	4	1	5	0											0	1					12	16	2	1							2	0
66	Woman's Medical College of Baltimore.—R																													2	0					1	0										
67	Maryland Medical College.—R	8	1							1	0	1	2	1	0			6	0											2	0	2	0	0	10	9	3									0	1		
	MASSACHUSETTS.																																															
68	Boston University School of Medicine.—H									1	0							1	0																	3	0									3	0	1	0
69	College of Physicians and Surgeons.—R									0	1																			1	0					10	5									1	0	1	1
70	Harvard University Medical School.—R			1	0			1	1	4	0											4	0					1	0	2	0	2	0	8	0	102	0	1	0	1	0					11	0		
71	Tufts College Medical School.—R							1	2	2	0	2	0							1	0													3	0			42	6							4	1		
	MICHIGAN.																																															
72	Detroit College of Medicine.—R							0	1	5	0									2	0	1	0															3	0	0	0	1							
73	Detroit Homeopathic Medical College.—H			0	1																	1	0																								
74	Michigan College of Medicine and Surgery.—R			0	1			2	1	3	0																													1								
75	Grand Rapids Medical College.—R									1	0																																					
76	University of Michigan Dept. of Medicine and Surgery.—R	1	1	2	0			3	4	4	0					1	1			1	2	5	0	4	0	4	0	2	0			1	0	1	0			2	0			0	2	1				2	0
77	University of Michigan Homeopathic Medical College.—H									2	0							2	0																													
	MINNESOTA.																																																
78	College of Homeopathic Med. and Surg., Univ. of Minn.—H																																															
79	College of Medicine and Surgery, Univ. of Minnesota.—R							4	1	2	0											1	0	1	0	3	0	1	0									67	1										
80	Medical Department of Hamline University.—R									2	0																											13	11										
	MISSISSIPPI.																																															
81	Medical Dept., University of Mississippi, Oxford.—R																																															
	MISSOURI.																																															
82	Medico-Chirurgical College.—R					1	0																																									
83	University Medical College of Kansas City.—R			1	0			0	1	7	0															3	0																			15	0		
84	Kansas City Hahnemann Medical College.—H									1	0							1	2							1	3																			11	0	1	0
85	Kansas City Medical College.—R									1	0																																					
86	Eclectic Medical University.—E					1	0			5	0									0	1																									6	0	0	1
87	Central Medical College.—R									0	1																																					
88	Ensworth Medical College.—R									5	0									0	2																									5	0		
89	Barnes Medical College.—R									5	0															3	1	3	0							1	0									14	0		
90	Marion Sims-Beaumont College of Medicine.—R					2	1	1	0	8	0									2	1	19	0	1	0	5	6	12	0	2	0	1	0			0	2			1	0	0	2	67	0		
91	St. Louis College of Physicians and Surgeons.—R							1	1	9	0											35	0			1	3	12	0	1	0									1	0			54	0		
92	American Medical College.—E			2	0	1	0			1	0											21	1	1	0	7	4	1	0	1	0					0	1							26	0	1	0		
93	Homeopathic Medical College of Missouri.—H									2	0															0	1																			2	0		
94	Medical Department, Washington University.—R									3	0											0	1	1	1	0	2																			7	0		
95	University of the State of Missouri.—R			1	0			1	2	3	0									0	1	24	0	2	0	2	0	0	1	1	2	0						0	1					36	0	1	0
	NEBRASKA.																																															
96	University of Nebraska College of Medicine.—R									6	0											1	0			3	2																			9	1		
97	John A. Creighton Medical College.—R							1	0	4	0															4	0	3	0											1	0					5	1		
98	Lincoln Medical College of Cotner University.—E									2	1																	1	0																	3	1		

Number.	Name of College.	Alabama.		Arizona.		Arkansas.		California.		Colorado.		Connecticut.		Deaware.		D. of Columbia		Georgia.		Idaho.		Illinois.		Indiana.		Iowa.		Kansas.		Kentucky.		Louisiana.		Maine.		Maryland.		Massachusetts.		Michigan.		P
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	ALABAMA.																																							
1	Birmingham Medical College.—R	33	0																																					
2	Medical College of Alabama.—R	32	1																																					
	ARKANSAS.																																							
3	Medical Department Arkansas University.—R					1	0																																	
	CALIFORNIA.																																							
4	Cooper Medical College.—R							39	4	1	0															1	0													
5	Medical Department University of California.—R							33	2																															
6	California Medical College.—E							3	0																															
7	Hahnemann Medical College of the Pacific.—H							2	1	1	0																													
8	College of Physicians and Surgeons, San Francisco.—R							16	11	2	0																													
9	Oakland College of Medicine and Surgery.—R																																							
10	College of Medicine, University of Southern California.—R			3	0			13	4																															
	COLORADO.																																							
11	Denver and Gross College of Medicine.—R			1	0			1	0	28	0									3	0					1	0	1	0											
12	Denver Homeopathic College.—H									0	0																													
13	Colorado School of Medicine.—R									12	0																											1	0	
	CONNECTICUT.																																							
14	Yale University, Department of Medicine.—R											21	2																									3	0		
	DISTRICT OF COLUMBIA.																																							
15	Columbian University, Department of Medicine.—R									1	0					43	0					1	0	1	0			1	0	1	0			7	2					
16	Georgetown University, School of Medicine.—R							1	0	2	0					14	2					1	0											2	0	6	0			
17	Howard University, Medical Department.—R	0	2					1	0							5	6																	0	1					
	GEORGIA.																																							
18	Atlanta College of Physicians and Surgeons.—R	3	0			1	0			1	0							24	0													1	0							
19	Georgia College of Eclectic Medicine and Surgery.—E	1	1															15	0																					
20	Medical College of Georgia.—R																	27	0																					
	ILLINOIS.																																							
21	American Medical Missionary College.—R							1	0	5	0											3	0			1	0													
22	Bennett College of Eclectic Medicine and Surgery.—E																					10	0	1	0	1	0													1
23	Chicago Homeopathic Medical College.—H			1	0			1	0	4	0											28	1	5	0	0	4	1	1	1	0									1
24	College of Medicine and Surgery.—Ph.M																					11	3																	
25	College of Physicians and Surgeons, Chicago.—R							3	1	7	0							2	0			145	2	7	1	12	2	4	0									3	0	2
26	Hahnemann Medical College and Hospital.—H									3	0											38	1	1	0	4	0							1	0			1	0	1
27	Harvey Medical College.—R																					10	2	1	0															
28	Hering Medical College.—H									3	0									0	1	9	0	1	0	1	0	3	0											
29	Illinois Medical College.—R	1	0			0	1	1	0	2	0											29	3	8	0	3	0							1	0					
30	Jenner Medical College.—R																					18	0			0	1													
31	Northwestern University Medical School.—R			1	0			3	1	6	0											75	0	1	0	18	0	4	0											
32	Rush Medical College.—R			1	0	1	0	5	1	10	0					1	0			3	0	129	0	9	1	15	0	5	0											
33	National Medical University																					17	6			2	0					1	0							
34	American College of Medicine and Surgery.—E									0	1											19	2	1	0															
35	Dearborn Medical College, Chicago.—R																					18	0																	
	INDIANA.																																							
36	Central College of Physicians and Surgeons.—R			1	0																			8	0															
37	Medical College of Indiana.—R					1	0			1	0											4	0	15	2															
38	Physio-Medical College of Indiana.—Ph.M					1	0																	3	0															
39	Eclectic Medical College of Indiana.—E																							2	0															
40	Fort Wayne College of Medicine—R																							1	0															
41	Indiana University School of Medicine.—R							1	0																															
	IOWA.																																							
42	Drake University College of Medicine.—R																									13	1													
43	Keokuk Medical College of Physicians and Surgeons.—R									3	0											2	0			58	7													
44	Sioux City College of Medicine.—R									1	0															12	0													
45	State University of Iowa, Homeopathic Medical Dept.—H																									8	0													
46	State University of Iowa, Medical Department.—R							0	1																	48	3													
	KANSAS.																																							
47	College of Physicians and Surgeons of Kansas City.—R																																							
48	Kansas Medical College.—R															1	0			0	1							1	0											
49	School of Medicine, University of Kansas.—R																																							
	KENTUCKY.																																							
50	Hospital College of Medicine.—R	0	1							1	0											0	2	6	6					63	2									
51	Kentucky School of Medicine.—R					1	0			1	0											3	0	9	1					55	0					3	5			
52	Louisville Medical College.—R	3	0			1	0			1	0									1	0	4	0	4	2			2	1	29	1	3	0							
53	Louisville National Medical College.—R																																							
54	Southwestern Homeopathic Medical College.—H																													7	0									
55	Medical Department, University of Louisville.—R							1	0	7	0											0	1	9	1					36	0	1	1							
56	Kentucky University, Medical Department.—R					1	0													0	1			11	2					22	0	2	1							
	LOUISIANA.																																							
57	Flint Medical College of New Orleans University.—R					1	0																									4	5							
58	Tulane University, Medical Department.—R	8	1															1	0											1	0	53	0							
	MAINE.																																							
59	Medical School of Maine, Bowdoin College.—R																																	19	5			2	0		
	MARYLAND.																																							
60	Baltimore Medical College.—R							1	0	2	0	3	6									2	0			1	0			1	1			2	0	15	4	16	7		
61	Baltimore University School of Medicine.—R									4	0			0	1															1	0			1	0	14	2	6		
62	College of Physicians and Surgeons of Baltimore.—R					1	0	0	1	2	0	5	3									1	0	1	0	1	0							1	2	16	11	10	1		
63	Medical Department, Johns Hopkins University.—R							3	0			1	0			2	0	3	0			4	0											1	0	8	0			
64	Southern Homeopathic Medical College.—H													1	0																					12	0			
65	University of Maryland, School of Medicine.—R									1	0	0	1	1	0	3	1	5	0											0	1					42	16	2	1	
66	Woman's Medical College of Baltimore.—R																													1	0					1	0			
67	Maryland Medical College.—R	8	1							1	0	1	2	1	0			6	0													2	0	2	0	10	9	3	5		
	MASSACHUSETTS.																																							
68	Boston University School of Medicine.—H											1	0																					3	0			16	0		
69	College of Physicians and Surgeons.—R											0	1																			1	0	5	1			10	5		
70	Harvard University Medical School.—R			1	0			1	0	1	0											2	0											5	0			26	0		
71	Tufts College Medical School.—R							1	1	2	0	2	0							1	0													3	0			42	3		
	MICHIGAN.																																							
72	Detroit College of Medicine.—R									3	0									1	0																	3	0	6	0
73	Detroit Homeopathic Medical College.—H																					1	0																1	0
74	Michigan College of Medicine and Surgery.—R			0	1			2	1	1	0																												0	1
75	Grand Rapids Medical College.—R									1	0																													
76	University of Michigan Dept. of Medicine and Surgery.—R	1	1	2	0			3	0	2	0					1	0					5	0	4	0	2	0	1	0					1	0			2	0	32	0
77	University of Michigan Homeopathic Medical College.—H									2	0							1	0																					
	MINNESOTA.																																							
78	College of Homeopathic Med. and Surg., Univ. of Minn.—H																																							
79	College of Medicine and Surgery, Univ. of Minnesota.—R							3	1	1	0													1	0	3	0	1	0											66
80	Medical Department of Hamline University.—R									1	0																													13
	MISSISSIPPI.																																							
81	Medical Dept., University of Mississippi, Oxford.—R																																							
	MISSOURI.																																							
82	Medico-Chirurgical College.—R					1	0			2	0																	3	0											
83	University Medical College of Kansas City.—R							0	1	2	0															1	3	2	3											
84	Kansas City Hahnemann Medical College.—H									1	0																	3	1											
85	Kansas City Medical College.—R									1	0									0	1							4	0											
86	Eclectic Medical University.—E									1	0																	2	0											
87	Central Medical College.—R									3	0																	1	0											
88	Ensworth Medical College.—R									2	0															3	1	1	0											
89	Barnes Medical College.—R					1	0			5	0									2	0	19	0	1	0	5	6	2	0	2	0	1	0							1
90	Marion Sims-Beaumont College of Medicine.—R							0	1													34	0			1	2	1	0	1	0									
91	St. Louis College of Physicians and Surgeons.—R			1	0					1	0											21	0	1	0	7	4	1	0	1	0									
92	American Medical College.—E																									0	1													
93	Homeopathic Medical College of Missouri.—H									1	0											0	1	1	1	0	2													
94	Medical Department, Washington University.—R									2	0											23	0	2	0	1	0	0	1	2	0									0
95	University of the State of Missouri.—R							1	0																															
	NEBRASKA.																																							
96	University of Nebraska College of Medicine.—R									2	0															3	2													
97	John A. Creighton Medical College.—R							1	0	3	0															4	0	1	0											1
98	Lincoln Medical College of Cotner University.—E									2	1																	1	0											
	NEW HAMPSHIRE.																																							
99	Dartmouth Medical College.—R							0	1			1	0													1	0											3	0		
	NEW YORK.																																							
100	Albany Medical College.—R																																					1	0		
101	College of Physicians and Surgeons.—R	2	0	1	0			1	0			9	0					2	0			1	0															9	0		
102	Cornell University Medical College.—R											2	0															1	0									2	0	1	0
103	Eclectic Medical College.—E																													4	0									
104	Long Island College Hospital.—R																																							
105	New York Homeopathic Medical College and Hospital.—H											0	1			1	0																							
106	New York Medical College and Hospital for Women.—H																													1	0									
107	University and Bellevue Hospital Medical College.—R									2	0													1	0	1	0											1	0		
108	Syracuse University College of Medicine—R																																	1	0					
109	University of Buffalo, Medical Department.—R																													1	0									
	NORTH CAROLINA.																																							
110	Leonard Medical School, Shaw University.—R	1	0													1	0																							
111	Wake Forest School of Medicine.—R																																							
112	North Carolina Medical College.—R																																							
113	Medical Department, University of North Carolina.—R																																							
	OHIO.																																							
114	Western Reserve University Medical College.—R									1	0																			1	0									
115	Cleveland College of Physicians and Surgeons.—R																							2	0															
116	Cleveland Homeopathic Medical College.—H									3	0																			2	0									
117	Eclectic Medical Institute.—E	1	0					0	1													1	0	5	2	0	4	0	1											
118	Medical College of Ohio.—R									1	0													1	0					1	0									
119	Pulte Medical College.—H																													1	0							0	1	
120	Miami Medical College.—R					1	2															0	1							10	0							1	0	
121	Ohio Medical University.—R					0	1															2	0	1	0					5	0									
122	Starling Medical College.—R					0	1																													0	1			
123	Toledo Medical College.—R									1	0																													
	OKLAHOMA.																																							
124	University of Oklahoma, Norman																																							
	OREGON.																																							
125	University of Oregon, Medical Department.—R																																							
126	Medical Department, Willamette University.—R																																							
	PENNSYLVANIA.																																							
127	Temple College of Philadelphia, Dept. of Medicine.—R																																							
128	University of Pennsylvania, Department of Medicine.—R	1	0							5	0	5	0	1	0	1	0					2	0	1	0	1	0			1	0					1	0	2	0		
129	Hahnemann Medical College and Hospital.—H			1	0					1	0	1	0	1	0									1	0											1	0			
130	Jefferson Medical College.—R							2	1			1	0	1	0			1	0			1	0	4	1	12	0	1	0					1	0	1	0	9	0	1	0
131	Woman's Medical College of Pennsylvania.—R									1	0			0	1															2	0					0	1	8	0		
132	Medico Chirurgical College of Philadelphia.—R									4	0			4	0									1	0	1	0							1	0					
133	Western Pennsylvania Medical College.—R									4	0																													
	SOUTH CAROLINA.																																							
134	Medical College of the State of South Carolina.—R																	1	0											1	0					1	0			
	TENNESSEE.																																							
135	Tennessee Medical College.—R																													2	0									
136	Knoxville Medical College.—R																													0	1									
137	Medical Department of University of Nashville.—R	6	0					1	0							1	0													2	0	5	0							
138	Vanderbilt University Medical Department.—R	4	0			2	0																					1	0			2	0							
139	University of Tennessee, Medical Department.—R	2	1			0	2																																	
140	Meharry Medical College.—R	2	0			10	1			1	0							7	2			0	1					0	1	6	0	1	0							
141	Memphis Hospital Medical College.—R	11	0			3	1											1	0													18	3							
142	University of the South.—R	1	0			1	0			1	0							2	0											1	0	2	6			1	4	2	3		
143	Chattanooga National Medical College.—R																																							
144	Chattanooga Medical College.—R	10	2			2	0											3	0											2	0									
145	University of West Tennessee, Medical Department.—R					2	0																																	
	TEXAS.																																							
146	Medical Department Fort Worth University.—R					2	0																																	
147	University of Texas Department of Medicine.—R	1	0																																					
148	Baylor University College of Medicine.—R																																							
149	Physio-Medical College of Texas.—P.M																																							
150	Dallas Medical College.—R			0	1	1	0	0	1																															
151	Gate City Medical College, Texarkana.—R																																							
152	Southwestern University Medical College, Dallas.—R																																							
153	Bell Medical College, Dallas.—R																																							
	VERMONT.																																							
154	University of Vermont Medical Department.—R											3	0																					4	0			15	3		
	VIRGINIA.																																							
155	Medical College of Virginia.—R																																							
156	University College of Medicine.—R																																							
157	University of Virginia Department of Medicine.—R	3	0													0	1	1	0																					
	WEST VIRGINIA.																																							
158	University of West Virginia, Morgantown																																							
	WISCONSIN.																																							
159	Milwaukee Medical College.—R																																							
160	Wisconsin College of Physicians and Surgeons.—R																					1	0																	
161	Canadian Colleges							3	1	3	0	1	0			1	0					2	0	1	0	2	0					1	0	4	0			8	3	3	0
162	Foreign	1	0					3	0			1	6									4	1											1	0			7	0	1	0
	Totals by States	117		16		40		210		190		83		11		84		104		17		733		152		271		58		256		120		65		184		330		50	
	Totals—Registered by Diploma									186																				246										
	Totals—Examined—Passed	106		14		35		167		1		61		10		73		102		13		704		132		227		49		4		103		57		119		287		49	
	Totals—Examined—Failed	11		2		5		43		3		22		1		11		2		4		29		20		44		9		6		17		8		65		43		1	
	Percentage of Failures	9.4		12.5		12.5		21.9		75.0		26.5		9.0		13.1		1.9		23.5		3.9		13.1		16.2		15.5		60.0		14.2		12.3		35.3		13.0		2.0	

Figures in italics show those registered by diploma.

USIVE EXAMINED BY STATE BOARDS DURING 1904.

| Massachusetts. | | Michigan. | | Minnesota. | | Mississippi. | | Missouri. | | Montana. | | Nebraska. | | Nevada. | | New Hampshire | | New Jersey. | | New Mexico. | | New York. | | North Carolina. | | North Dakota | | Ohio. | | Oklahoma. | | Oregon. | | Pennsylvania. | | Rhode Island. | | South Carolina | | South Dakota. | | Tennessee. | | Texas. | | Utah. | | Vermont. | | Virginia. | | Washington. | | West Virginia. | | Wisconsin. | | Wyoming. | | Totals. | Registered on Diploma. | Examined—Passed. | Examined—Failed. | Percentage of Failures. | No. of States having Representative. | Number. |
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Number.	Name of College.	Alabama. P	Alabama. F	Arizona. P	Arizona. F	Arkansas. P	Arkansas. F	California. P	California. F	Colorado. P	Colorado. F	Connecticut. P	Connecticut. F	Delaware. P	Delaware. F	D. of Columbia P	D. of Columbia F	Georgia. P	Georgia. F	Idaho. P	Idaho. F	Illinois. P	Illinois. F	Indiana. P	Indiana. F	Iowa. P	Iowa. F	Kansas. P	Kansas. F	Kentucky. P	Kentucky. F	Louisiana. P	Louisiana. F	Maine. P	Maine. F	Maryland. P	Maryland. F	Massachusetts. P	Massachusetts. F	Michigan. P	Michigan. F	Minnesota. P	Minnesota. F	Mississippi. P	Mississippi. F
	ALABAMA.																																												
	Birmingham Medical College.—R	2	0																																										
	Medical College of Alabama.—R																																												
	ARKANSAS.																																												
3	Medical Department Arkansas University.—R					0	1																																						
	CALIFORNIA.																																												
4	Cooper Medical College.—R			0	1																																								
5	Medical Department University of California.—R							1	0	1	0																																		
6	California Medical College.—E									1	0																																		
7	Hahnemann Medical College of the Pacific.—H																																												
8	College of Physicians and Surgeons, San Francisco.—R																																												
9	Oakland College of Medicine and Surgery.—R																																												
10	College of Medicine, University of Southern California.—R			0	1															0	1																								
	COLORADO.																																												
11	Denver and Gross College of Medicine.—R					1	0																																						
12	Denver Homeopathic College.—H																																												
13	Colorado School of Medicine.—R																																												
	CONNECTICUT.																																												
14	Yale University, Department of Medicine.—R																																												
	DISTRICT OF COLUMBIA.																																												
15	Columbian University, Department of Medicine.—R							0	1																																				
16	Georgetown University, School of Medicine.—R															1	0							1	0																				
17	Howard University, Medical Department.—R																																												
	GEORGIA.																																												
18	Atlanta College of Physicians and Surgeons.—R									1	0																																		
19	Georgia College of Eclectic Medicine and Surgery.—E	1	0																																										
20	Medical College of Georgia.—R									1	0																																		
	ILLINOIS.																																												
21	American Medical Missionary College.—R																																												
22	Bennett College of Eclectic Medicine and Surgery.—E																																												
23	Chicago Homeopathic Medical College.—H							1	0	1	0																																		
24	College of Medicine and Surgery.—Ph.M																																												
25	College of Physicians and Surgeons, Chicago.—R	1	0					3	1	5	0													1	0	1	0																	12	0		
26	Hahnemann Medical College and Hospital.—H									3	0	0	1											1	0																				
27	Harvey Medical College.—R	1	0							1	0																																		
28	Hering Medical College.—H																																												
29	Illinois Medical College.—R																																												
30	Jenner Medical College.—R																																												
31	Northwestern University Medical School.—R							3	0	4	0																																		
32	Rush Medical College.—R					1	0	9	3	17	0											1	2	2	0	2	0	1	1																
33	National Medical University																																												
34	American College of Medicine and Surgery.—E																																												
35	Dearborn Medical College, Chicago.—R																																												
	INDIANA.																																												
36	Central College of Physicians and Surgeons.—R							0	1													1	0																					
37	Medical College of Indiana.—R									4	0																			1	0															
38	Physio-Medical College of Indiana.—Ph.M																																												
39	Eclectic Medical College of Indiana.—E																																												
40	Fort Wayne College of Medicine.—R									1	0																																		
41	Indiana University School of Medicine.—R																																												
	IOWA.																																												
42	Drake University College of Medicine.—R									2	0																																		
43	Keokuk Medical College of Physicians and Surgeons.—R									7	0											1	0	1	0																	0	1		
44	Sioux City College of Medicine.—R																																												
45	State University of Iowa, Homeopathic Medical Dept.—H									1	0															0	1																		
46	State University of Iowa, Medical Department.—R							0	1	2	0											2	0			1	0															1	0		
	KANSAS.																																												
47	College of Physicians and Surgeons of Kansas City.—R																																												
48	Kansas Medical College.—R																																												
49	School of Medicine, University of Kansas.—R																																												
	KENTUCKY.																																												
50	Hospital College of Medicine.—R																							1	0																				
51	Kentucky School of Medicine.—R			1	0			0	1	4	0					1	0			1	1									1	0	0	1										
52	Louisville Medical College.—R									1	0											0	1																					
53	Louisville National Medical College.—R																																												
54	Southwestern Homeopathic Medical College.—H									1	0																																		
55	Medical Department, University of Louisville.—R					0	1	1	2	7	0													1	1			0	1	1	0									1	0				
56	Kentucky University, Medical Department.—R																																												
	LOUISIANA.																																												
57	Flint Medical College of New Orleans University.—R																																												
58	Tulane University, Medical Department.—R			1	0			0	1	1	0																					2	0										
	MAINE.																																												
59	Medical School of Maine, Bowdoin College.—R																																	2	0										
	MARYLAND.																																												
60	Baltimore Medical College.—R					1	0			1	0											1	0									1	0			0	1						
61	Baltimore University School of Medicine.—R									1	0																							1	0			0	2				
62	College of Physicians and Surgeons of Baltimore.—R																	1	0					1	0							1	0			1	0						
63	Medical Department, Johns Hopkins University.—R																																											
64	Southern Homeopathic Medical College.—H																																												
65	University of Maryland, School of Medicine.—R			1	0	1	0			2	0					1	0																										
66	Woman's Medical College of Baltimore.—R																													1	0												
67	Maryland Medical College.—R																																												
	MASSACHUSETTS.																																												
68	Boston University School of Medicine.—H																	1	0																										
69	College of Physicians and Surgeons.—R																																												
70	Harvard University Medical School.—R							0	1	3	0											2	0					1	0			2	0	3	0			6	0	1	0		
71	Tufts College Medical School.—R							0	1																													0	3						
	MICHIGAN.																																												
72	Detroit College of Medicine.—R							0	1											1	0	1	0																				
73	Detroit Homeopathic Medical College.—H			0	1																																								
74	Michigan College of Medicine and Surgery.—R									2	0																																		
75	Grand Rapids Medical College.—R																																												
76	University of Michigan Dept. of Medicine and Surgery.—R							0	4	2	0					0	1			1	2					2	0	1	0			1	0										
77	University of Michigan Homeopathic Medical College.—H																	1	0																										
	MINNESOTA.																																												
78	College of Homeopathic Med. and Surg., Univ. of Minn.—H																																												
79	College of Medicine and Surgery, Univ. of Minnesota.—R							1	0	1	0											1	0																			1	0		
80	Medical Department of Hamline University.—R									1	0																																		
	MISSISSIPPI.																																												
81	Medical Dept., University of Mississippi, Oxford.—R																																												
	MISSOURI.																																												
82	Medico-Chirurgical College.—R																																												
83	University Medical College of Kansas City.—R			1	0					2	0									1	2							1	1														
84	Kansas City Hahnemann Medical College.—H																																												
85	Kansas City Medical College.—R					1	0			2	0									0	2																						
86	Eclectic Medical University.—E																																												
87	Central Medical College.—R									2	0									0	2																						
88	Ensworth Medical College.—R									3	0																			2	0							1	0				
89	Barnes Medical College.—R					1	1	1	0	3	0									0	1																	0	2				
90	Marion Sims-Beaumont College of Medicine.—R							1	0	4	0											1	0			0	1	1	0														
91	St. Louis College of Physicians and Surgeons.—R			1	0	1	0															0	1															0	1				
92	American Medical College.—E									2	0																																		
93	Homeopathic Medical College of Missouri.—H									2	0																																		
94	Medical Department, Washington University.—R			1	0			1	2	3	0									0	1	1	0			1	0	1	0														
95	University of the State of Missouri.—R									1	0																																		
	NEBRASKA.																																												
96	University of Nebraska College of Medicine.—R									4	0											1	0																				
97	John A. Creighton Medical College.—R									1	0																			2	0												
98	Lincoln Medical College of Cotner University.—E																																												
	NEW HAMPSHIRE.																																												
99	Dartmouth Medical College.—R									1	0	0	1																														
	NEW YORK.																																												
100	Albany Medical College.—R							1	1																							1	0					0	2				
101	College of Physicians and Surgeons.—R			1	0			2	1	7	0	2	0			1	0							1	0	1	0											3	1				
102	Cornell University Medical College.—R											1	0																														
103	Eclectic Medical College.—E																					1	0																				
104	Long Island College Hospital.—R							1	0	1	0									1	0																						
105	New York Homeopathic Medical College and Hospital.—H			1	0			1	0	1	0													1	0																		
106	New York Medical College and Hospital for Women.—H																																												
107	University and Bellevue Hospital Medical College.—R			2	0	1	0	3	3	9	0					0	1	1	0			1	0	1	0					1	0	2	0			1	0	1	1				
108	Syracuse University College of Medicine.—R									1	0																																		
109	University of Buffalo, Medical Department.—R							1	0	2	0													1	0																		
	NORTH CAROLINA.																																												
110	Leonard Medical School, Shaw University.—R																																												
111	Wake Forest School of Medicine.—R																																												
112	North Carolina Medical College.—R																																												
113	Medical Department, University of North Carolina.—R																																												
	OHIO.																																												
114	Western Reserve University Medical College.—R									1	0													1	0	1	0																
115	Cleveland College of Physicians and Surgeons.—R							1	1	1	0													1	0																		
116	Cleveland Homeopathic Medical College.—H			0	1					2	0																																
117	Eclectic Medical Institute.—E																									0	3	2	0	1	0												
118	Medical College of Ohio.—R					1	0			7	0													1	1																		
119	Pulte Medical College.—H									1	0															0	1																
120	Miami Medical College.—R									2	0											0	1					1	0	1	0									0	1		
121	Ohio Medical University.—R					1	0	1	0	2	0									2	1			0	1			0	1									1	0				
122	Starling Medical College.—R							3	0	3	0																																
123	Toledo Medical College.—R			0	1					1	0																																
	OKLAHOMA.																																												
124	University of Oklahoma, Norman																																												
	OREGON.																																												
125	University of Oregon, Medical Department.—R									1	0																																		
126	Medical Department, Willamette University.—R																																												
	PENNSYLVANIA.																																												
127	Temple College of Philadelphia, Dept. of Medicine.—R																																												
128	University of Pennsylvania, Department of Medicine.—R					1	0	1	0	2	0																			1	0	1	0							1	0		
129	Hahnemann Medical College and Hospital.—H									1	0																															0	1		
130	Jefferson Medical College.—R							0	2	6	0							1	0	0	1	1	0			1	0			1	0							0	1				
131	Woman's Medical College of Pennsylvania.—R							1	0							0	1																							2	0				
132	Medico Chirurgical College of Philadelphia.—R							1	0																																				
133	Western Pennsylvania Medical College.—R			1	0			1	1																																			
	SOUTH CAROLINA.																																												
134	Medical College of the State of South Carolina.—R							0	1																																				
	TENNESSEE.																																												
135	Tennessee Medical College.—R																																												
136	Knoxville Medical College.—R																																												
137	Medical Department of University of Nashville.—R					2	1																									1	1										
138	Vanderbilt University Medical Department.—R			1	0	3	0	1	0	1	0									1	0											2	0					0	1				
139	University of Tennessee, Medical Department.—R	1	0			1	0			1	0											1	0																				
140	Meharry Medical College.—R	1	0					0	1																	0	1																
141	Memphis Hospital Medical College.—R					2	0			1	0							1	0									1	0			2	1										
142	University of the South.—R							0	1																																				
143	Chattanooga National Medical College.—R																																												
144	Chattanooga Medical College.—R																	0	2																										
145	University of West Tennessee, Medical Department.—R																																												
	TEXAS.																																												
146	Medical Department Fort Worth University.—R																																												
147	University of Texas Department of Medicine.—R							1	0																																				
148	Baylor University College of Medicine.—R																																												
149	Physio-Medical College of Texas.—P.M																																												
150	Dallas Medical College.—R																																												
151	Gate City Medical College, Texarkana.—R																																												
152	Southwestern University Medical College, Dallas.—R																																												
153	Bell Medical College, Dallas.—R																																												
	VERMONT.																																												
154	University of Vermont Medical Department.—R							1	0			0	2																											1	1				
	VIRGINIA.																																												
155	Medical College of Virginia.—R															1	0																										
156	University College of Medicine.—R																																												
157	University of Virginia Department of Medicine.—R	1	0					0	1			1	0																	1	0												
	WEST VIRGINIA.																																												
158	University of West Virginia, Morgantown																																												
	WISCONSIN.																																												
159	Milwaukee Medical College.—R																																												
160	Wisconsin College of Physicians and Surgeons.—R																																												
161	Canadian Colleges			1	0			0	1	8	0	1	0					3	0											1	0	2	0			2	0	2	0	1	0		
162	Foreign			1	0	2	0	6	3	6	0	1	0					2	0			4	0	2	1	1	0	1	0							4	4			1	0		
	Totals by States	8		19		25		86		184		10		0		8		10		22		29		22		19		19		9		20		9		3		44		3		10	
	Totals—Registered by Diploma									184																				9													
	Totals—Examined—Passed	8		14		21		49				6		0		5		8		8		24		18		11		15				17		9		2		25		3		7	
	Totals—Examined—Failed	0		5		4		37				4		0		3		2		14		5		4		8		4				3		0		1		19		0		3	
	Percentage of Failures	0		26.3		16.0		43.0				40.0				37.5		20.0		65.2		17.2		18.2		42.1		21.0				15.0		0		33.3		43.2		0		30.0	

Figures in italics show those registered by diploma.

| | Minnesota. | | Mississippi. | | Missouri. | | Montana. | | Nebraska. | | Nevada. | | New Hampshire | | New Jersey. | | New Mexico. | | New York. | | North Carolina. | | North Dakota | | Ohio. | | Oklahoma. | | Oregon. | | Pennsylvania. | | Rhode Island. | | South Carolina | | South Dakota. | | Tennessee. | | Texas. | | Utah. | | Vermont. | | Virginia. | | Washington. | | West Virginia. | | Wisconsin. | | Wyoming. | | Total. | Registered on Diploma. | Examined Passed. | Examined Failed. | Percentage of Failure. | No. of States having Representative. | Number. |
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Number.	Name of College.	Alabama.		Arizona.		Arkansas.		California.		Colorado.		Connecticut.		Delaware.		D. of Columbia		Georgia.		Idaho.		Illinois.		Indiana.		Iowa.		Kansas.		Kentucky.		Louisiana.		Maine.		Maryland.		Massachusetts.		Michigan.		Minnesota.	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
	ALABAMA.																																						
1	Birmingham Medical College.—R	3	0																																				
2	Medical College of Alabama.—R	34	1																																				
	ARKANSAS.																																						
3	Medical Department Arkansas University.—R					1	1																																
	CALIFORNIA.																																						
4	Cooper Medical College.—R			0	1			39	4	1	0															1	0												
5	Medical Department University of California.—R							34		1	0																												
6	California Medical College.—E									4	0																												
7	Hahnemann Medical College of the Pacific.—H							7	1	1	0																												
8	College of Physicians and Surgeons, San Francisco.—R							16	11	2	0																												
9	Oakland College of Medicine and Surgery.—R																																						
10	College of Medicine, University of Southern California.—R			3	1			22	4											0	1																		
	COLORADO.																																						
11	Denver and Gross College of Medicine.—R			1	0	1	0	1	0	28	0									3	0					1	0	1	0										
12	Denver Homeopathic College.—H									6	0																												
13	Colorado School of Medicine.—R									12	0																											1	0
	CONNECTICUT.																																						
14	Yale University, Department of Medicine.—R											21	2																								3	0	
	DISTRICT OF COLUMBIA.																																						
15	Columbian University, Department of Medicine.—R							0	1	1	0					43	0					1	0	1	0					1	0	1	0			2	2		
16	Georgetown University, School of Medicine.—R							1	0	2	0					15	2					1	0	1	0											0			
17	Howard University, Medical Department.—R	0	2					1	0							5	6																	0	1				
	GEORGIA.																																						
18	Atlanta College of Physicians and Surgeons.—R	3	0			1	0			2	0							24	0													1	0						
19	Georgia College of Eclectic Medicine and Surgery.—E	2	1															15	0																				
20	Medical College of Georgia.—R									1	0							27	0																				
	ILLINOIS.																																						
21	American Medical Missionary College.—R							1	0	5	0											3	0			1	0												
22	Bennett College of Eclectic Medicine and Surgery.—E																					10	0	1	0	1	0											1	0
23	Chicago Homeopathic Medical College.—H			1	0			2	0	5	0											28	1	5	0	0	4	1	1	1	0							1	0
24	College of Medicine and Surgery.—Ph.M																					11	5															1	1
25	College of Physicians and Surgeons, Chicago.—R	1	0					8	2	12	0									2	0	143	2	8	1	13	3	4	0							3	0	11	2
26	Hahnemann Medical College and Hospital.—H									8	0	0	1									38	1	2	0	4	0					1	0			1	0	4	0
27	Harvey Medical College.—R	1	0							1	0											16	2	1	0														
28	Hering Medical College.—H									3	0									0	1	9	0	1	0	1	0	3	0					1	0				
29	Illinois Medical College.—R	1	0			0	1	1	0	2	0											29	3	9	0	3	0							0	2				
30	Jenner Medical College.—R																					18	0			0	2												
31	Northwestern University Medical School.—R			1	0			6	1	10	0									12	0	75	0	1	0	18	0	4	0									7	0
32	Rush Medical College.—R			1	0	2	0	14	4	25	0					1	0			3	0	130	2	11	1	17	0	6	1									7	0
33	National Medical University																					17	6			2	0					1	0						
34	American College of Medicine and Surgery.—E									0	1											19	2	1	0														
35	Dearborn Medical College, Chicago.—R																					18	0																
	INDIANA.																																						
36	Central College of Physicians and Surgeons.—R			1	0			0	1													1	0	8	0														
37	Medical College of Indiana.—R					1	0			5	0											4	0	13	2					1	0								
38	Physio-Medical College of Indiana.—Ph.M					1	0																	3	0														
39	Eclectic Medical College of Indiana.—E																							2	0														
40	Fort Wayne College of Medicine—R									1	0													1	0														
41	Indiana University School of Medicine.—R							1	0																														
	IOWA.																																						
42	Drake University College of Medicine.—R									2	0															13	1												
43	Keokuk Medical College of Physicians and Surgeons.—R									10	0											3	0	1	0	38	7											2	4
44	Sioux City College of Medicine.—R									1	0															12	0											0	1
45	State University of Iowa, Homeopathic Medical Dept.—H									1	0															8	1												
46	State University of Iowa, Medical Department.—R							0	2	2	0											2	0			49	3											2	0
	KANSAS.																																						
47	College of Physicians and Surgeons of Kansas City.—R																																						
48	Kansas Medical College.—R															1	0			0	1							1	0										
49	School of Medicine, University of Kansas.—R																																						
	KENTUCKY.																																						
50	Hospital College of Medicine.—R	0	1							1	0											0	2	7	6					63	2								
51	Kentucky School of Medicine.—R			1	0	1	0	0	1	5	0					1	0			1	1	3	0	9	1			2		56	0	0	1			3	3		
52	Louisville Medical College.—R	3	0			1	0			2	0									1	0	4	1	1	2			2	1	29	1	3	0						
53	Louisville National Medical College.—R																																						
54	Southwestern Homeopathic Medical College.—H									1	0																			7	0								
55	Medical Department, University of Louisville.—R					0	1	2		14	0											0	1	10	2			0	1	37	0	1	1			1	0		
56	Kentucky University, Medical Department.—R					1	0													0	1			11	2					22	0	2	1						
	LOUISIANA.																																						
57	Flint Medical College of New Orleans University.—R					1	0																									4	5						
58	Tulane University, Medical Department.—R	8	1	1	0			0	1	1	0							1	0											1	0	55	0						
	MAINE.																																						
59	Medical School of Maine, Bowdoin College.—R																																	21	5		2	0	
	MARYLAND.																																						
60	Baltimore Medical College.—R					1	0	1	0	3	0	3	0									3	0			1	0			1	1	1	0	3	0	15	5	16	0		
61	Baltimore University School of Medicine.—R									3	0		0	1																1	0			2	0	14	2	9	
62	College of Physicians and Surgeons of Baltimore.—R					1	0	0	1	2	0	5	5					1	0			1	0	2	0	1	0					1	0	1	2	17	11	10	1		
63	Medical Department, Johns Hopkins University.—R							3	0			1	0			2	0	3	0			4	0											1	0	8	0			2	0
64	Southern Homeopathic Medical College.—H													1	0																					12	0				
65	University of Maryland, School of Medicine.—R			1	0	1	0			3	0	0	1	1	0	4	1	5	0											0	1					42	16	2	1		
66	Woman's Medical College of Baltimore.—R																													2	0					1	9		
67	Maryland Medical College.—R	8	1							1	0	1	2	1	0			6	0													2	0	2	0	10	9	3	3		
	MASSACHUSETTS.																																						
68	Boston University School of Medicine.—H											1	0					1	0															3	0			16	0	2	0
69	College of Physicians and Surgeons.—R									0	1																											10	5		
70	Harvard University Medical School.—R			1	0			1	1	4	0											4	0					1	0			1	0	2	0	8	0	102	0	1	0
71	Tufts College Medical School.—R							1	2	2	0	2	0							1	0													3	0			42	6		
	MICHIGAN.																																						
72	Detroit College of Medicine.—R							0	1	3	0									2	0	1	0													3	0	6	0	0	1
73	Detroit Homeopathic Medical College.—H			0	1																	1	0															1	0		
74	Michigan College of Medicine and Surgery.—R			0	1			2	1	3	0																											0	1		
75	Grand Rapids Medical College.—R									1	0																														
76	University of Michigan Dept. of Medicine and Surgery.—R	1	1	2	0			5	4	4	0					1	1			1	2	5	0	4	0	4	0	2	0			1	0	1	0			2	0	32	0	2	1
77	University of Michigan Homeopathic Medical College.—H									2	0																														
	MINNESOTA.																																						
78	College of Homeopathic Med. and Surg., Univ. of Minn.—H																																						
79	College of Medicine and Surgery, Univ. of Minnesota.—R							4	1	2	0											1	0	1	0	3	0	1	0									67	1
80	Medical Department of Hamline University.—R									2	0																											13	11
	MISSISSIPPI.																																						
81	Medical Dept., University of Mississippi, Oxford.—R																																						
	MISSOURI.																																						
82	Medico-Chirurgical College.—R					1	0																			3	0												
83	University Medical College of Kansas City.—R			1	0			0	1	1	0									1	2					1	3	3	4										
84	Kansas City Hahnemann Medical College.—H									1	0																	3	1										
85	Kansas City Medical College.—R					1	0			3	0									0	1							4	0									0	1
86	Eclectic Medical University.—E									0	1																	2	0										
87	Central Medical College.—R									3	0									0	2							1	0										
88	Ensworth Medical College.—R									3	0															3	1	3	0							1	0		
89	Barnes Medical College.—R					2	1	1	0	8	0									2	1	19	0	1	0	5	6	2	0	2	0	1	0			0	2			1	0
90	Marion Sims-Beaumont College of Medicine.—R							1	1	9	0											35	0			13	3	2	0	1	0								
91	St. Louis College of Physicians and Surgeons.—R			2	0	1	0			1	0											21	1	1	0	7	4	1	0	1	0					0	1		
92	American Medical College.—E									2	0															0	1												
93	Homeopathic Medical College of Missouri.—H									3	0											0	1	1	1	0	2												
94	Medical Department, Washington University.—R			1	0			1	2	5	0									0	1	24	0	2	0	2	0	1	1	2	0							0	1
95	University of the State of Missouri.—R							1	0	1	0																												
	NEBRASKA.																																						
96	University of Nebraska College of Medicine.—R									6	0											1	0			3	2												
97	John A. Creighton Medical College.—R							1	0	4	0															4	0	3	0										
98	Lincoln Medical College of Cotner University.—E									2	1																	1	0										
	NEW HAMPSHIRE.																																						
99	Dartmouth Medical College.—R							0	1	1	0	1	1													1	0									3	0		
	NEW YORK.																																						
100	Albany Medical College.—R							1	1																													1	2		
101	College of Physicians and Surgeons.—R	2	0	2	0			3	1	7	0	11	0			1	0	2	0			1	0	1	0	1	0					1	0					14	1		
102	Cornell University Medical College.—R											3	0															1	0									2	0	1	0
103	Eclectic Medical College.—E																					1	0							4	0								
104	Long Island College Hospital.—R							1	0	1	0									1	0																		
105	New York Homeopathic Medical College and Hospital.—H			1	0			1	0	1	0	0	1			1	0							1	0														
106	New York Medical College and Hospital for Women.—H																													1	0								
107	University and Bellevue Hospital Medical College.—R			2	0	1	0	3	3	5	0	2	0			0	1	1	0			1	0	2	0	1	0			1	0	2	0			1	0	2	1		
108	Syracuse University College of Medicine—R									1	0																					1	0						
109	University of Buffalo, Medical Department.—R							1	0	2	0															1	0			1	0								
	NORTH CAROLINA.																																						
110	Leonard Medical School, Shaw University.—R	1	0															1	0																				
111	Wake Forest School of Medicine.—R																																						
112	North Carolina Medical College.—R																																						
113	Medical Department, University of North Carolina.—R																																						
	OHIO.																																						
114	Western Reserve University Medical College.—R									2	0															1	0	1	0			1	0						
115	Cleveland College of Physicians and Surgeons.—R							1	1	1	0															3	0												
116	Cleveland Homeopathic Medical College.—H			0	1					3	0																			2	0								
117	Eclectic Medical Institute.—E	1	0					0	1													1	0	5	2	0	7	2	1	1	0								
118	Medical College of Ohio.—R					1	0			8	0													2	1					1	0								
119	Pulte Medical College.—H									1	0																			1	0								
120	Miami Medical College.—R							1	2	2	0															0	1			1	0					2	0		
121	Ohio Medical University.—R					1	0	1	1	2	0									2	1	2	0	1	1			0	1	5	0			0	1	1	0		
122	Starling Medical College.—R							3	1	5	0																												
123	Toledo Medical College.—R			0	1					2	0																												
	OKLAHOMA.																																						
124	University of Oklahoma, Norman																																						
	OREGON.																																						
125	University of Oregon, Medical Department.—R									1	0																												
126	Medical Department, Willamette University.—R																																						
	PENNSYLVANIA.																																						
127	Temple College of Philadelphia, Dept. of Medicine.—R																																						
128	University of Pennsylvania, Department of Medicine.—R	1	0			1	0	1	0	5	0	5	0	1	0	1	0					2	0	1	0	1	0			1	0	1	0	1	0	1	0	2	0	1	0
129	Hahnemann Medical College and Hospital.—H			1	0					2	0	1	0	1	0									1	0							1	0	2	0	1	0	0	1
130	Jefferson Medical College.—R							2	3	6	0	1	0	1	0			2	0	0	1	2	0	4	1	13	0	1	0	1	0			1	0	1	0	9	1	1	0
131	Woman's Medical College of Pennsylvania.—R							1	0			1	0			0	2													2	0			0	1	10	0		
132	Medico Chirurgical College of Philadelphia.—R							1	0	4	0			4	0									1	0	1	0					1	0					1	0
133	Western Pennsylvania Medical College.—R			1	0			1	1	4	0																												
	SOUTH CAROLINA.																																						
134	Medical College of the State of South Carolina.—R							0	1									1	0											1	0					1	0		
	TENNESSEE.																																						
135	Tennessee Medical College.—R																													2	0								
136	Knoxville Medical College.—R																													0	1								
137	Medical Department of University of Nashville.—R	6	0			2	1			1	0							1	0							1	0	2	0	6	1								
138	Vanderbilt University Medical Department.—R	4	0	1	0	5	0	1	0	1	0									1	0									4	0					0	1		
139	University of Tennessee, Medical Department.—R	3	1			1	2			1	0											1	0					0	1	6	0	1	1						
140	Meharry Medical College.—R	3	0			10	1	0	1	1	0							7	2			0	1			0	1			6	0	1	0						
141	Memphis Hospital Medical College.—R	11	0			5	1			1	0							2	0							1	0			20	4								3
142	University of the South.—R	1	0			1	0	0	1	1	0							2	0											1	0	2	6			1	4	2	3		
143	Chattanooga National Medical College.—R																																						
144	Chattanooga Medical College.—R	10	2			2	0											3	2											2	0								
145	University of West Tennessee, Medical Department.—R					2	0																																
	TEXAS.																																						
146	Medical Department Fort Worth University.—R					2	0																																
147	University of Texas Department of Medicine.—R	1	0					1	0																														
148	Baylor University College of Medicine.—R																																						
149	Physio-Medical College of Texas.—P.M																																						
150	Dallas Medical College.—R			0	1	1	0	0	1																														
151	Gate City Medical College, Texarkana.—R																																						
152	Southwestern University Medical College, Dallas.—R																																						
153	Bell Medical College, Dallas.—R																																						
	VERMONT.																																						
154	University of Vermont Medical Department.—R							1	0			3	2																					4	0			16	4		
	VIRGINIA.																																						
155	Medical College of Virginia.—R															1	0																						
156	University College of Medicine.—R																													1	0								
157	University of Virginia Department of Medicine.—R	4	0					0	1			1	0			0	1	1	0																				1
	WEST VIRGINIA.																																						
158	University of West Virginia, Morgantown																																						
	WISCONSIN.																																						
159	Milwaukee Medical College.—R																																						
160	Wisconsin College of Physicians and Surgeons.—R																					1	0																
161	Canadian Colleges			1	0			3	2	11	0	2	0			1	0					5	0	1	0	2	0			2	0	6	0			10	3	5	0	4	0
162	Foreign	1	0	1	0	2	0	9	3	6	0	2	6					2	0			8	1	2	1	1	0	1	0			1	0

F	Michigan. P	F	Minnesota. P	F	Mississippi. P	F	Missouri. P	F	Montana. P	F	Nebraska. P	F	Nevada. P	F	New Hampshire P	F	New Jersey. P	F	New Mexico. P	F	New York. P	F	North Carolina. P	F	North Dakota P	F	Ohio. P	F	Oklahoma. P	F	Oregon. P	F	Pennsylvania. P	F	Rhode Island. P	F	South Carolina P	F	South Dakota. P	F	Tennessee. P	F	Texas. P	F	Utah. P	F	Vermont. P	F	Virginia. P	F	Washington. P	F	West Virginia. P	F	Wisconsin. P	F	Wyoming. P	F	Totals.	Registered on Diplomas.	Examined—Passed.	Examined—Failed.	Percentages of Failures.	No. of States having Representatives.	Number.
					1	3													1	0																																			4		4	0	0		1
																																					1	0																			41		36	5	12.2	4	2
					1	0																																																	3		2	1	33.3		3
																															3	0																									38	7	44	5	10.2	6	4
																																																								37	3	34	2	5.5	2	5
																																																								12	4	5	3	62.5	3	6
																																																								9	2	7	1	12.5	2	7
																																																								32	2	18	12	40.0	4	8
																																																																											9
																											1	0																															32		26	6	18.7	4	10
																															1	0																		

TABLE B.—GRADUATES OF 1904 EXAMINED BY STA

Number.	Name of College.	Alabama.		Arizona.		Arkansas.		California.		Colorado.		Connecticut.		Delaware.		D. of Columbia		Georgia.		Idaho.		Illinois.		Indiana.		Iowa.		Kansas.		Kentucky.		Louisiana.		Maine.		Maryland.		Massachusetts.		Michigan.		Minnesota.	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
	Alabama.																																							
1	Birmingham Medical College.—R	33	0																																						
2	Medical College of Alabama.—R	27	1																																						
	Arkansas.																																								
3	Medical Department Arkansas University.—R					1	0																																		
	California.																																								
4	Cooper Medical College.—R							35	3	1	0																														
5	Medical Department University of California.—R							32																																	
6	California Medical College.—E							38	1																																
7	Hahnemann Medical College of the Pacific.—H							6	0																																
8	College of Physicians and Surgeons, San Francisco.—R							7	10	2	0																														
9	Oakland College of Medicine and Surgery.—R																																								
10	College of Medicine, University of Southern California.—R			1	0			20	3																																
	Colorado.																																								
11	Denver and Gross College of Medicine.—R									25	0																														
12	Denver Homeopathic College.—H									6	0																														
13	Colorado School of Medicine.—R									14	0																														
	Connecticut.																																								
14	Yale University, Department of Medicine.—R											11	0																									2	0			
	District of Columbia.																																								
15	Columbian University, Department of Medicine.—R															28	0															1	0			5	2				
16	Georgetown University, School of Medicine.—R									1	0					1						1	0													1	0	5	0			
17	Howard University, Medical Department.—R	0	1													3	3																								
	Georgia.																																								
18	Atlanta College of Physicians and Surgeons.—R	2	0															24	0													1	0								
19	Georgia College of Eclectic Medicine and Surgery.—E	1	1															15	0																						
20	Medical College of Georgia.—R																	25	0																						
	Illinois.																																								
21	American Medical Missionary College.—R																					1	0			1	0														
22	Bennett College of Eclectic Medicine and Surgery.—E																					10	0			1	0														
23	Chicago Homeopathic Medical College.—H							1	0	7	0											25	0	5	0	2	1	1	1	0										1	1
24	College of Medicine and Surgery.—Ph.M									1	0											11	4															1	0	4	2
25	College of Physicians and Surgeons, Chicago.—R							2	0	4	0									1	0	141	2	0	3	2	3	0								1	0	2	0
26	Hahnemann Medical College and Hospital.—H																					35	1	1	0	4	0														
27	Harvey Medical College.—R																					15	2																		
28	Hering Medical College.—H																					8	0	1	0	1	0	3	0							1	0				
29	Illinois Medical College.—R	1	0																			29	2			2	0														
30	Jenner Medical College.—R																					18	1																		
31	Northwestern University Medical School.—R							3	1	3	0											72	0	1	0	17	0	3	2	0										4	0
32	Rush Medical College.—R					1	0			2	0											103	0	3	1	4	0	3	2	0										1	0
33	National Medical University																					13	4			1	0					1	0								
34	American College of Medicine and Surgery.—E																					19	2	1	0																
35	Dearborn Medical College, Chicago.—R																					18	0																		
	Indiana.																							8	0																
36	Central College of Physicians and Surgeons.—R																							13	2																
37	Medical College of Indiana.—R					1	0	1	0													4	0	3	0																
38	Physio-Medical College of Indiana.—Ph.M																																								
39	Eclectic Medical College of Indiana.—E																																								
40	Fort Wayne College of Medicine.—R																							1	0																
41	Indiana University School of Medicine.—R																																								
	Iowa.																																								
42	Drake University College of Medicine.—R																									13	0														
43	Keokuk Medical College of Physicians and Surgeons.—R									1	0															37	6													1	
44	Sioux City College of Medicine.—R									1	0															12	0													0	1
45	State University of Iowa, Homeopathic Medical Dept.—H																									8	0														
46	State University of Iowa, Medical Department.—R							0	1	1	0															48	3														
	Kansas.																																								
47	College of Physicians and Surgeons of Kansas City.—R																																								
48	Kansas Medical College.—R															1	0											1	0												
49	School of Medicine, University of Kansas.—R																																								
	Kentucky.																																								
50	Hospital College of Medicine.—R	0	1																			0	1	4	4					62	1								
51	Kentucky School of Medicine.—R																							6	0					31	0							1	3
52	Louisville Medical College.—R	1	0			1	0			1	0											3	0	3	0			2	1	28	0	3	0						
53	Louisville National Medical College.—R																																								
54	Southwestern Homeopathic Medical College.—H																																								
55	Medical Department, University of Louisville.—R																					0	1	7	1					35	0	1	0						
56	Kentucky University, Medical Department.—R																			0	1	3	0	9	2					25	0	1	0						
	Louisiana.																															2									
57	Flint Medical College of New Orleans University.—R					1	0																									0									
58	Tulane University, Medical Department.—R	8	1															1	0											1	0	53	0								
	Maine.																																	19	5						
59	Medical School of Maine, Bowdoin College.—R																																								
	Maryland.																																								
60	Baltimore Medical College.—R											2	3									2	0							1	0			2	0	12	6	13	5		
61	Baltimore University School of Medicine.—R									3	0																			1	0			1	0	2	2	3			
62	College of Physicians and Surgeons of Baltimore.—R							0	1	2	0	4	2									1	0											1	1	15	10	6	0		
63	Medical Department, Johns Hopkins University.—R							12	0			1	0					1	0			2	0											1	0	5	0			1	0
64	Southern Homeopathic Medical College.—H																																			12	0				
65	University of Maryland, School of Medicine.—R									1	0	0	1	1	0	2	1	4	0											0	1					31	13	1	1		
66	Woman's Medical College of Baltimore.—R																																			1	0				
67	Maryland Medical College.—R	8	1							1	0	1	2					5	0													2	0	2	0	8	10	3	4		
	Massachusetts.																																								
68	Boston University School of Medicine.—H																																	3	0			12	0			1	0
69	College of Physicians and Surgeons.—R											0	1																					4	1			9	4				
70	Harvard University Medical School.—R																					1	0											1	0			82	0				
71	Tufts College Medical School.—R																																					37	3				
	Michigan.																																								
72	Detroit College of Medicine.—R									1	0									1	0																	2	0	4	0		
73	Detroit Homeopathic Medical College.—H																					1	0																	1	0		
74	Michigan College of Medicine and Surgery.—R																																								
75	Grand Rapids Medical College.—R																																								
76	University of Michigan Dept. of Medicine and Surgery.—R	0	1							1	0					1	0					1	0	1	0	1	0	1	0							1	0	30	0	1	0
77	University of Michigan Homeopathic Medical College.—H									1	0																														
	Minnesota.																																								
78	College of Homeopathic Med. and Surg., Univ. of Minn.—H																																								
79	College of Medicine and Surgery, Univ. of Minnesota.—R																									2	0	1	0											3	1
80	Medical Department of Hamline University.—R																																							9	0
	Mississippi.																																								
81	Medical Dept., University of Mississippi, Oxford.—R																																								
	Missouri.																																								
82	Medico-Chirurgical College.—R					1	0																					3	0												
83	University Medical College of Kansas City.—R							0	1	2	0																	2	0												
84	Kansas City Hahnemann Medical College.—H									1	0																	2	0												
85	Kansas City Medical College.—R																											4	0											0	1
86	Eclectic Medical University.—E									0	1																	2	0												
87	Central Medical College.—R									1	0																	1	0												
88	Ensworth Medical College.—R									1	0															3	0	1	0												
89	Barnes Medical College.—R									3	0											19	0	1	0	4	2	1	0	2	0										
90	Marion Sims-Beaumont College of Medicine.—R									3	0											33	0			1	2			1	0										
91	St. Louis College of Physicians and Surgeons.—R									1	0											20	0	1	0	3	2			1	0										
92	American Medical College.—E																																								
93	Homeopathic Medical College of Missouri.—H																					0	1	1	1	0	2														
94	Medical Department, Washington University.—R																					23	0	1	0					2	0									0	1
95	University of the State of Missouri.—R							1	0																																
	Nebraska.																																								
96	University of Nebraska College of Medicine.—R									1	0															1	0													1	0
97	John A. Creighton Medical College.—R							1	0																	3	0														
98	Lincoln Medical College of Cotner University.—E									2	1																	1	0												
	New Hampshire.																																					2	0			
99	Dartmouth Medical College.—R																																								
	New York.																																					1	0			
100	Albany Medical College.—R																																					4	0			
101	College of Physicians and Surgeons.—R	2	0									3	0					1	0			1	0																		
102	Cornell University Medical College.—R											2	0																												
103	Eclectic Medical College.—E																													3	0										
104	Long Island College Hospital.—R																																								
105	New York Homeopathic Medical College and Hospital.—H															1	0																								
106	New York Medical College and Hospital for Women.—H																																								
107	University and Bellevue Hospital Medical College.—R											1	0													1	0											1	0			
108	Syracuse University College of Medicine.—R																															1	0								
109	University of Buffalo, Medical Department.—R																													1	0										
	North Carolina.																																								
110	Leonard Medical School, Shaw University.—R	1	0															1	0																						
111	Wake Forest School of Medicine.—R																																								
112	North Carolina Medical College.—R																																								
113	Medical Department, University of North Carolina.—R																																								
	Ohio.																																								
114	Western Reserve University Medical College.—R																																								
115	Cleveland College of Physicians and Surgeons.—R																																								
116	Cleveland Homeopathic Medical College.—H									1	0																			1	0										
117	Eclectic Medical Institute.—E							0	1													1	0	2	0	0	1														
118	Medical College of Ohio.—R									1	0																														
119	Pulte Medical College.—H																													1	0										
120	Miami Medical College.—R							0	1													0	1							7	0							1	0		
121	Ohio Medical University.—R																													3	0										
122	Starling Medical College.—R																																								
123	Toledo Medical College.—R																																								
	Oklahoma.																																								
124	University of Oklahoma, Norman																																								
	Oregon.																																								
125	University of Oregon, Medical Department.—R																																								
126	Medical Department, Willamette University.—R																																								
	Pennsylvania.																																								
127	Temple College of Philadelphia, Dept. of Medicine.—R																																								
128	University of Pennsylvania, Department of Medicine.—R	1	0									1	0									1	0							1	0					1	0	1	0		
129	Hahnemann Medical College and Hospital.—H													1	0																			1	0	1	0	1	0		
130	Jefferson Medical College.—R											1	0	1	0			1	0					4	1	3	0	1	0							1	0	7	0	1	0	2	0
131	Woman's Medical College of Pennsylvania.—R															0	1													2	0	2	0			0	1	3	0		
132	Medico Chirurgical College of Philadelphia.—R											3	0													1	0							1	0						
133	Western Pennsylvania Medical College.—R																																								
	South Carolina.																																								
134	Medical College of the State of South Carolina.—R																	1	0																						
	Tennessee.																																								
135	Tennessee Medical College.—R																													2	0										
136	Knoxville Medical College.—R																																								
137	Medical Department of University of Nashville.—R	5	0															1	0											2	0	3	0								
138	Vanderbilt University Medical Department.—R	3	0			1	0																									1	0								
139	University of Tennessee, Medical Department.—R	2	0																											5	0										
140	Meharry Medical College.—R	2	0			8	0			1	0							6	2											6	0	1	1								
141	Memphis Hospital Medical College.—R	9	0			2	0																									14	2								
142	University of the South.—R	1	0																													2	5					0	2		
143	Chattanooga National Medical College.—R																																								
144	Chattanooga Medical College.—R	9	1			2	0											3	0											1	0										
145	University of West Tennessee, Medical Department.—R					2	0																																		
	Texas.																																								
146	Medical Department Fort Worth University.—R					1	0																																		
147	University of Texas Department of Medicine.—R	1	0																																						
148	Baylor University College of Medicine.—R																																								
149	Physio-Medical College of Texas.—P.M																																								
150	Dallas Medical College.—R			0	1																																				
151	Gate City Medical College, Texarkana.—R																																								
152	Southwestern University Medical College, Dallas.—R																																								
153	Bell Medical College, Dallas.—R																																								
	Vermont.																																								
154	University of Vermont Medical Department.—R											1	0																									12	3			
	Virginia.																																								
155	Medical College of Virginia.—R																																								
156	University College of Medicine.—R																																								
157	University of Virginia Department of Medicine.—R	1	0													0	1																								
	West Virginia.																																								
158	University of West Virginia, Morgantown																																								
	Wisconsin.																																								
159	Milwaukee Medical College.—R																																								
160	Wisconsin College of Physicians and Surgeons.—R																					1	0																		
161	Canadian Colleges							2	0	1	0	1	0			1	0					2	0											2	0			2	2		
162	Foreign																																								
	Totals by States	96	2	22		132		96		40		7		52		91		3		660		91		209		37		228		98		49		138		242		37		105	
	Totals—Registered by Diploma							*94*																				223													
	Totals—Examined—Passed	88	1	22		106		0		31		7		45		89		2		638		79		187		35		3		88		42		94		212		37		91	
	Totals—Examined—Failed	8	1	0		26		2		9		0		7		3		1		22		12		22		2		2		10		7		44		30		0		14	
	Percentage of Failures	8.3	50.0	0		19.7		100.		22.5		0		13.5		2.2		33.3		3.3		13.2		10.5		5.4		40.0		10.2		14.3		31.9		12.4		0		13.3	

Figures in italics show those registered by diploma.

| | Michigan. | | Minnesota. | | Mississippi. | | Missouri. | | Montana. | | Nebraska. | | Nevada. | | New Hampshire. | | New Jersey. | | New Mexico. | | New York. | | North Carolina. | | North Dakota. | | Ohio. | | Oklahoma. | | Oregon. | | Pennsylvania. | | Rhode Island. | | South Carolina. | | South Dakota. | | Tennessee. | | Texas. | | Utah. | | Vermont. | | Virginia. | | Washington. | | West Virginia. | | Wisconsin. | | Wyoming. | | Totals. | Registered on Diploma. | Examined—Passed. | Examined—Failed. | Percentage of Failures. | No. of States having Representatives. | Number. |
|---|---|---

diseased mucus from the interior of the tonsil. When these openings are closed from cold or otherwise, the mucus is retained and decomposition sets in; hence an abscess. Tonsils of the third variety can be relieved with 2 per cent. solution of nitrate of silver, but those of the second variety give more trouble. His treatment consists of passing a small curette through the openings into the bottom of the tonsil, and removing all the diseased or granular tissue, then carrying a 10 per cent. solution of nitrate of silver into the tonsil. This should be repeated in from three to six days, and continued until the tonsils are cured, which usually requires six treatments.

DISCUSSION.

DR. J. T. HERRON of Jackson emphasized the importance of removing hypertrophied tonsils and not allowing them to remain, thus weakening the mental and physical strength of boys and girls. He cited a number of cases on which he had operated with gratifying results.

DR. G. C. SAVAGE, Nashville, said it is a great mistake to allow children to go on from year to year with enlarged faucial tonsils, especially if they are subject to repeated attacks of inflammation. The only danger from clipping a tonsil is that of hemorrhage, and severe hemorrhage rarely occurs. A tenotome, shaped after the manner of the tonsillotome, is just as easy to use on the pharyngeal tonsil as the tonsillotome on the faucial tonsil.

DR. T. J. HAPPEL, Trenton, prefers Tiemann's tonsillotome for removing tonsils, but the practitioner should select that instrument which is best adapted to his use, then the work can be done more successfully.

Gastric Dilatation Without Stenosis.

DR. FENTON B. TURCK, Chicago, cited the class of cases usually observed, and advanced the statement that many severe diseases may go on indefinitely without symptoms and without serious consequences, but as soon as there is gastric atony and dilatation the medical adviser is called in to the relief of pressing symptoms. In childhood the dilatation is usually acute, due often to indiscretions in diet, but the stomach ejects the cause of the trouble, giving itself the only remedy required —rest. In these cases the symptoms are mostly confined to vomiting and rarely prove troublesome. In adults the severest lesions may have been present for indefinite periods of time; gastroptosis from various causes; gastritis, either acute or chronic, including atrophy, and yet the symptoms be wholly absent. But when gastric atony with dilatation supervenes, there are at once symptoms of a most positive character, and many diseases that progress to a fatal ending without recognition are on postmortem examination discovered to be gastric atony with dilatation, the fundus of the stomach often resting on the pelvic apparatus. He outlined a number of experiments to show that it is not due to any stimulation of the stomach contents that causes the muscularis of the stomach to begin activity.

In dietetics, no fast and hard rule can be laid down, the prime requisite being to give the greatest possible amount of rest, the shortest possible period of muscular activity, and the most serviceable foods to maintain the strength of the patient. He prefers two meals daily at the outset of treatment, one in the morning and one in the evening. Theoretically, a liquid diet is preferable, but he employs solid food in a finely divided state, properly prepared, with a sufficient amount of liquid to aid the stomach in the maceration of the mass, so that it may be easily propelled into the intestines. Certain mechanical methods employed, such as lavage, galvanic and faradic electricity, exercise, and the more or less systematic bathings and drugs, he considers of very little value. The high frequency current with the Oudin resonator he has found sometimes of advantage as an adjuvant.

Gastrointestinal Diseases of Children in Summer.

DR. ZEB. L. SHIPLEY, Cookeville, divided the acute diarrheas of infancy into two main classes, namely, those due to nervous origin, and those due to infection. Simple diarrhea is of nervous origin, manifested by an increased peristalsis caused by various conditions acting through the central nervous system or by the mechanical action of undigested food. Among the most important factors acting through the central nervous system are sudden changes in temperature, prolonged exposure to heat or cold, fright and fatigue. Food may fail of digestion from being unsuitable, or from the digestive organs being functionally weak. In either case the food becomes a foreign body. In this form of diarrhea the intestinal mucous membrane shows no pathologic lesion unless it be a slight hyperemia. The stools are increased in number and fluidity, and usually contain particles of undigested food. The chief factor in the treatment of this form of diarrhea is the removal of the cause, when the diarrhea usually ceases. But should it continue, the treatment must be directed to the control of the excessive peristalsis.

In the prophylactic treatment of infective diarrhea, the infant should have the best possible hygienic surroundings, be given plenty of fresh air and bathed frequently and fed carefully.

How Shall We Feed and Treat the Baby?

DR. HERMAN HAWKINS, Jackson, laid down three cardinal rules: (1) A food should be given the baby which can be assimilated and given at regular intervals. (2) One should obtain the best possible hygiene of person and surroundings. (3) As little medicine as possible should be given.

Amyloid Degeneration.

DR. C. P. MCNABB, Knoxville, defined this disease, then discussed its clinical history. Treatment consists of removal of the cause.

The More Serious Complications of La Grippe.

DR. E. A. COBLEIGH, Chattanooga, said that one of the primal results of influenza which has been impressed on his mind is not simply the usual debility which accompanies most of the cases, but its indefinite persistence and extreme degree in many cases. The next condition, often occurring by itself, is marked by extreme nervousness. A third condition, not very frequent, but seen often enough to impress the clinician, is marked by mental involvement, occasionally amounting to prolonged delirium, to stupor a little short of coma, to hallucinations during or even after convalescence from the real attack, and rarely to mania or continuing insanity. One of the most impressive and rare complications of la grippe consists in extreme clonic spasmodic seizures involving thhe heart, the diaphragm and muscles of respiration, with perfect mentation during it all, but giving rise to the most pitiable agony of fear of impending death.

The Clinical Significance of Ascites.

DR. RAYMOND WALLACE, Chattanooga, reported two cases. One case illustrated unusual difficulty in making an accurate diagnosis. The pronounced alcoholic history in this case with excessive peripheral arteriosclerosis, taken with the gastric symptoms and the presence of ascites, naturally led to a diagnosis of atrophic cirrhosis; and the absence of any cirrhotic changes in the liver is a point of interest. The disappearance of the miliary carcinosis of the peritoneum after scrubbing and exposure to the air presented a phase analogous to the operative cure of miliary tubercle of the peritoneum.

Acute Septic Osteitis.

DR. JERE A. CROOK, Jackson, presented a specimen of a tubular sequestrum that he removed from a femur of a 10-year-old boy. This was a case of chronic osteomyelitis that had been discharging freely for several months. On cutting down on the femur a large cloaca was found, and a freely movable sequestrum. The opening was enlarged with a chisel, the sequestrum removed, and almost the entire cavity of the shaft curetted. It was irrigated and packed with gauze and allowed to granulate from the bottom. A second case was one of severe chronic osteomyelitis of the femur in a 12-year-old boy. The disease had existed for a year, and the necrosis had progressed so far that the shaft of the bone was entirely consumed for about two inches. The ends of the remaining bone in this case were rounded with bone forceps, all loose pieces removed, the two freshened ends put in apposition, drainage inserted, and the limb encased in splints. The result was unusually good. The bone united, the wound healed entirely, and

the patient had a useful leg with only about three inches of shortening. Here amputation seemed indicated, but conservative treatment saved the limb. He has only amputated twice for osteomyelitis, and then after making every effort to save the limb.

Prophylaxis of Tuberculosis.

At the evening session of the second day, to which the laity was invited, this subject was discussed, and speeches were made by Dr. J. A. Witherspoon, Rev. Collins Denny, Capt. A. J. Harris and Mr. G. H. Baskette.

Gallstones in the Common Duct.

DR. W. D. HAGGARD, Nashville, said that gallstones in the common duct have been found once in every five cases operated on by Robson, and once in every seven cases of the Mayos. It is estimated that 67 per cent. occur in the duodenal end, 15 per cent. in the hepatic end, and 18 per cent. in the middle of the choledochus. He spoke of the various sizes of these stones, and exhibited eight stones removed from the common duct, after the patient had passed 45 by the bowel during a period of five years, but had had no jaundice, except once for a period of two days. The duct was dilated so much that the bile escaped alongside the stones. Operation is not urged in acute obstruction by stone, but recommended in all cases that have been in existence for several weeks or longer, unless there are ecchymotic spots from long-standing cholemia. A quiescent interval between ague-like attacks and in the absence of jaundice, is recommended for operation, if such an interval can be attained. Choledochotomy and cholecystotomy were illustrated by large drawings. The Robson incision was recommended, and with a large cushion under the thorax the ducts can be brought almost to the surface by traction on the gall bladder and in a straight line; with the finger in the foramen of Winslow the stones could be palpated and extracted. The finger inserted into the duct, if possible, is said to be the best. The duct should be drained by tubage or gauze tied with catgut to the duct. Drains should be surrounded with gutta-percha tissue. Cholecystectomy is advocated if one is absolutely certain of the patency of the common duct, if the gall bladder is (a) contracted, suppurating, thick-walled and useless; (b) in gangrene; (c) neoplasms; (d) fistula into other viscera, and (e) in obstruction to the cystic duct. Robson's mortality in choledochotomy was 5 per cent. in the last 21 cases; 6.5 per cent. in 137 of Kehr's cases; 7 per cent. in 137 of the Mayos' cases, with an additional 4 per cent. who survived the operation, but died some weeks after. The Mayos did 30 consecutive cases without a death.

Etiology and Pathology of Appendicitis.

DR. WALTER LENEHAN, Nashville, found the following organisms in 12 cases: *Bacillus coli communis*, *Streptococcus pyogenes aureus*, *Staphylococcus pyogenes aureus*, *Bacillus influenzæ*, *Bacillus typhosus*, Klebs-Loeffler bacillus, *Bacillus tuberculosis*, and the *Diplococcus pneumoniæ*. Some non-pathogenic organisms, notably the gas bacillus and a few yeast fungi, were also found, but were invariably associated with one or more of the pathogenic organisms. The organism most frequently found was the colon bacillus. The author drew the conclusions that any micro-organisms capable of producing inflammatory changes in any other part of the body may also produce the same changes in the appendix.

Laryngeal Diphtheria.

DR. O. H. WILSON, Nashville, emphasized the importance of early mechanical relief when mechanical obstruction threafens life. Rapidity of progress is the characteristic feature of laryngeal diphtheria. While in no other operation does skill show to better advantage, intubation is not a difficult procedure, but can be learned easily by practice. An early operation, though possibly awkward, is better than waiting to give a moribund case to an imported consultant. Moral: Do not wait; intubate.

Tabes Dorsalis.

DR. G. P. EDWARDS, Nashville, said that this disease predominates in males 10 to 1. A neuropathic heredity is an important predisposing factor. The disease may appear in childhod from hereditary syphilis, but in the acquired form it occurs between 25 and 50 years of age; the greater proportion occurring about the age of 40. The symptomatology of tabes embraces almost every function in the body. The treatment should be directed, first, to the removal of any syphilitic processes present or suspected; to the improvement of the general health, to stimulate the function of the cells impaired but not lost, to encourage restoration of co-ordination in the muscular system, and correct any incidental disorders which may retard or complicate the desired result. The author believes that any stage or condition of tabes may be improved or benefited by properly directed treatment. The development of the degenerative changes can be arrested completely in nearly every preataxic case, and that much of the impaired function can be restored. He believes that these results may also be obtained in a large majority of the ataxic cases, and that this majority is reduced somewhat in proportion to the duration and intensity of the ataxia and the abuse of the specific remedies employed. The author's clinical observation, aggregating 14 cases, has been uniformly satisfactory. In 9 cases marked improvement in co-ordination, gait and general health has persisted. In 5 cases the knee-jerk has been restored to normal; all painful sensory symptoms have disappeared; dribbling of urine has ceased, and little evidence of the disease remains. In 2 cases the pupillary reflex to light has returned to normal. In 6 cases the Rhomberg sign is barely noticeable with both feet close together and the eyes closed. In 2 cases the patients can stand on one foot with the eyes closed. The author has demonstrated, to his own satisfaction at least, that the *x*-ray, when of sufficient penetration to obliterate the shadow of bony structures, will stimulate cell activity in the diseased cord, facilitate the restoration of the lost function in cells not completely destroyed, and relieve the crises and other lightning pains.

Alcoholic Insanity.

DR. I. A. MCSWAIN, Paris, offered the following suggestions on this subject: 1. The children of drunken and debauched parents ought to be taken away from them and placed in decent homes, or removed to industrial institutions provided by the state. This will check their hereditary tendencies to drunkenness, and therefore reduce the number being raised to become a burden to the state in the way of paupers, criminals and lunatics. 2. Young people, who early in life contract the pernicious habit of drinking, should also be removed from the temptation of their environment, and placed in institutions in which they should be taught some useful employment and restrained from vicious habits. 3. The drinking man, as soon as he begins his spree, before he is crazed by it, should be taken into custody, not as a mere nuisance, but as a dangerous man or one likely to become so, because of insanity in the incipient stage. 4. The confirmed drunkard, the chronic alcoholic subject, should on no account be allowed to exercise his personal liberty in the pursuit of delusions which result from prolonged excesses. The following papers were also read:

"Some Recently Collected Statistics on the Increasing Frequency of Abortion and Some Causes for the Same," by Dr. J. L. Andrews of Memphis; "Keratosis Follicularis," by Dr. G. P. Edwards, Nashville; "Bone Surgery," by Dr. R. A. Barr, Nashville; "The Physician as an Advertising Medium," by Dr. F. J. Runyan, Clarkesville; "Circumcision," by Dr. E. A. Timmons, Columbia, and "Appendicitis," by Dr. John A. Gaines, Nashville.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Potassium Iodid.

BEST METHOD OF ADMINISTRATION.

Acting on the principle that the best method of administering a drug is by obtaining the results desired with the least possible undesirable effect, Hühner, in *Med. Record*, states that the best method of administering potassium iodid must differ with the different purposes in view. If given in cases which

will require it for a long time, as in arteriosclerosis, it must be given differently than in cases which require rapid action as in gumma. General principles, in considering the different methods of administration, will apply to all of them.

1. For therapeutic purposes potassium iodid should always be given in solution, well diluted and, if possible, never on an empty stomach. For dilution milk is by far the best vehicle, as it not only disguises the taste, but also prevents disagreeable after-effects of the medicine. Syrup of sarsaparilla is another vehicle suggested; also the mineral waters or plain water.

2. The preparation must be pure potassium iodid, when pure can be taken for a very long period and in large doses without causing gastrointestinal disturbances, and many of the bad effects produced in the course of its administration are due to an impure preparation.

3. It is necessary to observe strict cleanliness of the skin by daily baths while taking the iodid internally. In this way the usual skin eruptions may be avoided, the eruption being due to the decomposition of the iodin salt excreted with the perspiration by the fatty acids, setting free the iodin, which acts as an irritant.

4. It is better to prescribe a 50 per cent. solution where two drops of the solution represent one grain of the salt rather than a 100 per cent. solution as the latter is not obtained when the druggist prepares it in the ordinary way, consequently the dosage is not so accurate.

5. It must be kept in mind that potassium iodid is incompatible with the alkaloids and soluble metallic salts such as calomel.

6. Small doses may produce symptoms of iodism while large doses in the same patient may not have this effect.

7. Potassium iodid should never be given in phthisis or even when there is a suspicion of phthisis. Its irritating effect on the bronchial mucous membrane makes it decidedly objectionable. If phthisis should be associated with syphilis it is of service.

SYPHILIS.

Potassium iodid should never be given in the primary stage of syphilis. In the secondary stage it should not be administered until the patient has had at least six months of treatment by mercurial inunctions unless, as sometimes happens, some tertiary symptoms appear ahead of time and threaten some important organ as the brain or the eye. Occasionally it is necessary in such cases to begin the administration of potassium iodid at once.

In the ordinary cases the author begins the iodids with the following combination:

℞ Hydrarg. iodidi rubri.....gr. ss |03
Potassii iodidi.....gr. cxxviii 8|60
Syr. sarsap. co.....ʒi 30|
Aquæ, q. s. ad.....ʒii 60|

M. Sig.: One teaspoonful after meals three times a day, well diluted.

After a few weeks it is better to give the iodid alone by the mouth and to give the mercury by inunction at intervals for another six months, giving especial attention to the mouth, teeth, gastrointestinal tract and the skin. When so giving the iodid the author recommends the following combination as preferable to the drop method:

℞ Potass. iodidi .....ʒviii-ʒx 30.-40|
Syr. sarsap. co.....ʒi 30|
Aquæ, q. s. ad.....ʒiii 90|

M. Sig.: One teaspoonful in half a glass of water three times a day, after meals.

When giving potassium iodid for its specific effect it should be stopped when the symptoms of poisoning appear, and after a short interval it should be begun again with a smaller dose. In tertiary syphilis, especially when a vital organ is involved or threatened, the dose should be gradually increased regardless of rhinitis, pustulations, etc., because by increasing the dose the symptoms of poisoning may disappear, and it is essential that the system becomes saturated, increasing the dose at the rate of six drops a day (two drops at a dose).

CEREBRAL SYPHILIS.

This form of syphilis is benefited only in the early stage by absorption of the gumma or swelling of the intima. If improvement does not take place after two months the iodin should be discontinued, as it may do harm. In all cases of cerebral or spinal cord tumors it should be given a trial, as it sometimes is of service in tumors of non-syphilitic origin.

LATE VARIETIES OF SYPHILIS.

In some of the late varieties of syphilis Shoemaker recommends the following combinations containing potassium iodid:

℞ Potassii iodidi .....ʒv 20|
Tinct. cimicifugæ .....ʒii 8|
Syr. sarsap. co.....ʒv 150|

M. Sig.: Two teaspoonfuls in water three or four times daily. Or:

℞ Sodii iodidi .....ʒiiss 10|
Vini erythroxyli (N. F.).....ʒx 300|

M. Sig.: One tablespoonful three or four times daily. Or:

℞ Ammon. iodidi .....ʒv 30|
Tinct. nucis vom.....ʒi 4|
Ext. rhamni purshiani flu.....ʒi 30|
Glycerini .....ʒiv 120|

M. Two teaspoonfuls in water three or four times a day.

In some cases the following is preferable:

℞ Hydrarg. iodidi rubri.....gr. iii |20
Potassii iodidi .....ʒi 30|
Tinct. iodi .....ʒi 4|
Syr. ferri iodidi.....ʒi 30|
Aquæ .....ʒiii 90|

M. Sig.: One teaspoonful in water after meals.

In combination with the salicylates the iodids may prove valuable, according to some authors, in acute rheumatism, as follows:

℞ Potass. iodidi .....ʒiii 12|
Sodii salicylatis .....ʒss 15|
Spts. etheris nitrosi.....ʒi 30|
Syr. aurantii .....ʒiiss 75|

M. Sig.: One to two teaspoonfuls every two hours, well diluted in water.

If the stomach shows intolerance the iodid is recommended given in the form of an enema, as the bowel absorbs it very readily and about as rapidly as does the mucous membrane of the stomach. It may be given combined as follows:

℞ Potassii iodidi .....gr. xlv 3|
Potassii bromidi.....gr. xv 1|
Ext. belladonnæ.....gr. v |30
Aquæ .....ʒvii 210|

M. Sig.: One and a half tablespoonfuls added to three ounces of water and given as an enema.

When there is a tendency to iodism the following is recommended by Lang:

℞ Potassii (sodii) iodidi.....ʒiiss 70|
Ext. belladonnæ.....gr. iss-ii |09-.12
Aquæ fontanæ .....ʒvi 180|

M. Sig.: One to three teaspoonfuls daily in half a glass of water, milk or beer.

As a preparation which may be used subcutaneously he recommends the following:

℞ Potass. iodidi .....gr. lxxv 5|
Codeinæ.....gr. 3/4 to iss |05-.09
Aquæ destil.. .....ʒiss 6|

M. Sig.: Fifteen to forty-five drops to be injected subcutaneously once daily.

TABES DORSALIS.

Although the iodids do not have the brilliant results in this condition which they have in other syphilitic lesions, Hubner says that potassium iodid should be given a trial, running the dose up to a hundred grains (6.65) a day.

CHRONIC ENDARTERITIS.

Whether the endarteritis is syphilitic or not, potassium iodid should be given in doses of from five to twenty grains (.30 to 1.30) four times a day for a considerable length of time, omitting it at intervals for a short period.

CHRONIC ENDOCARDITIS.

It matters not what valves are diseased if the arteries are contracted, potassium iodid is of value given in doses of from five to ten grains (.30 to .65) three times a day, kept up for a considerable period. It may be given in combination with digitalis, if the latter is indicated, to modify the action on the

arteries. The only effect potassium iodid has on the heart is shown only when large doses are taken and then it is due to the potassium.

ASTHMA.

If the asthmatic attacks are brought on by nasal polypi the iodid will only do harm by increasing the nasal congestion, and likewise when the attacks are due to swelling of the mucous membrane of the bronchi. If the attacks are due to simple spasm of the arterioles, good results are derived from its use. The author recommends, first, large doses of nitroglycerin, followed by potassium iodid in doses ranging from ten to twenty grains (.65 to 1.30) three times a day.

CHRONIC BRONCHITIS.

If the bronchitis is secondary to chronic endocarditis or endarteritis, it is of value in doses of from five to ten grains (.30 to .65) each.

LEAD POISONING.

In this condition the preparation must be given in small doses, grains five to ten (.30 to .65), for a long time, and must not be abandoned if the symptoms get worse, as this may be caused by the liberation of the lead and its circulation through the system, and likewise may produce cerebral symptoms. In anemic persons it is best combined with iron.

RHEUMATISM.

The iodid is useless in acute articular and in muscular rheumatism, as a rule. In chronic rheumatism it is of value combined as follows:

℞. Potassii iodidi.
Sodii salicylatis.
Vini colchici sem., āā.....3ii 8
Aquæ, q. s. ad.....℥iv 120
M. Sig.: One tablespoonful four times a day.

In administering potassium iodid to children the preparation may be given either to the mother or to the wet nurse, in the hope that it be excreted in the milk, but this is an unreliable method. In giving it directly to children, the symptoms of iodism are shown mainly through the gastrointestinal tract; children can stand larger doses proportionately, as a rule, than can adults. It should be given well diluted and preferably in small doses frequently given than in large doses infrequently given. In other words, it is better to give grain one-fourth (.015) every hour than one grain (.06) every four hours.

Chronic Rheumatism.

The *Clinical Review* recommends the following in the treatment of chronic rheumatism:

℞. Potass. iodidi 3i 4
Sodii salicylatis 3ii 8
Colchicin.
Strych. sulph., āā.....gr. ss 03
M. Ft. capsulæ No. 30. Sig.: One capsule three times a day.

In connection with the foregoing a teaspoonful of the following should be given as follows:

℞. Sodii benzoatis.
Sodii phosphatis, āā.....℥i 30
M. Sig.: One teaspoonful in glass of hot water before breakfast.

Medicolegal

Constitutionality of Compulsory Vaccination Law.

The Supreme Court of the United States says that the case of Jacobson vs. Massachusetts, as it is now entitled, was one where an adult, who, for aught that appeared, was in perfect health and a fit subject of vaccination, yet while remaining in the community refused to obey the Massachusettts statute empowering compulsory vaccination and a regulation adopted in execution of its provisions for the protection of the public health and the public safety, confessedly endangered by the presence of a dangerous disease. The court, however, now decides only that the statute covered this case, and that nothing clearly appeared that would justify the court in holding it to be unconstitutional and inoperative in its application to the defendant (Jacobson).

The court passes without extended discussion the suggestion that the particular section of the statute of Massachusetts in question was in derogation of rights secured by the preamble of the Constitution of the United States, because, although the preamble indicates the general purposes for which the people ordained and established the constitution, it has never been regarded as the source of any substantive power. The court also passes without discussion the suggestion that such section of the statute was opposed to the spirit of the constitution.

According to settled principles, the police power of a state, the court says, must be held to embrace, at least, such reasonable regulations established directly by legislative enactment as will protect the public health and the public safety. It is equally true that the state may invest local bodies called into existence for purposes of local administration with authority in some appropriate way to safeguard the public health and the public safety. On the principle of self-defense, of paramount necessity, a community has the right to protect itself against an epidemic of disease which threatens the safety of its members. Smallpox being prevalent and increasing at Cambridge, where the regulation in question was adopted, the court would usurp the functions of another branch of government if it adjudged, as matter of law, that the mode adopted under the sanction of the state, to protect the people at large was arbitrary, and not justified by the necessities of the case.

It was said, however, that the statute, as interpreted by the state court, although making an exception in favor of children certified by a registered physician to be unfit subjects for vaccination, made no exception in case of adults in like condition. But this could not be deemed a denial of the equal protection of the laws to adults; for the statute was applicable equally to all in like condition, and there were obviously reasons why regulations might be appropriate for adults which could not be safely applied to persons of tender years.

Certain offers of proof were made which in the main seemed to have had no purpose except to state the general theory of those of the medical profession who attach little or no value to vaccination as a means of preventing the spread of smallpox, or who think that vaccination causes other diseases of the body. But the court says that what everybody knows the court must know, and therefore the state court judicially knew, as this court knows, that an opposite theory accords with the common belief, and is maintained by high medical authority. It must be assumed that, when the statute in question was passed, the legislature of Massachusetts was not unaware of these opposing theories, and was compelled, of necessity, to choose between them. It was not compelled to commit a matter involving the public health and safety to the final decision of a court or jury. It was no part of the function of a court or a jury to determine which one of two modes was likely to be the most effective for the protection of the public against disease. That was for the legislative department to determine in the light of all the information it had or could obtain. It could not properly abdicate its function to guard the public health and safety.

Whatever may be thought of the expediency of this statute, it can not be affirmed to be, beyond question, in palpable conflict with the constitution. Nor, in view of the method employed to stamp out the disease of smallpox, can any one confidently assert that the means prescribed by the state to that end has no real or substantial relation to the protection of the public health and the public safety. Such an assertion would not be consistent with the experience of this and other countries whose authorities have dealt with the disease of smallpox. And the principle of vaccination as a means to prevent the spread of smallpox has been enforced in many states by statutes making the vaccination of children a condition of their right to enter or remain in public schools. Since, then, vaccination, as a means of protecting a community against smallpox, finds strong support in the experience of this and other countries, no court, much less a jury, is justified in disregarding the action of the legislature simply because in its or their opinion that particular method was—perhaps, or possibly—not the best either for children or adults.

The defendant offered, among other things, to prove that he

refused to submit to vaccination for the reason that he had, "when a child," been caused great and extreme suffering for a long period by a disease produced by vaccination, though he did not offer to prove that, by reason of his then condition, he was in fact not a fit subject of vaccination at the time he was informed of the requirement of the regulation adopted by the board of health. The court says that it was entirely consistent with his offer of proof that, after reaching full age, he had become, so far as medical skill could discover, and when informed of the regulation of the board of health was, a fit subject of vaccination, and that the vaccine matter to be used in his case was such as any medical practitioner of good standing would regard as proper to be used. The matured opinions of medical men everywhere, and the experience of mankind, as all must know, negative the suggestion that it is not possible in any case to determine whether vaccination is safe.

Was the defendant exempted from the operation of the statute simply because of his dread of the same evil results experienced by him when a child, and which he had observed in the cases of his son and other children? Could he reasonably claim such an exemption because "quite often," or "occasionally," injury had resulted from vaccination, or because it was impossible, in the opinion of some, by any practical test, to determine with absolute certainty whether a particular person could be safely vaccinated? It seems to the court that an affirmative answer to these questions would practically strip the legislative department of its function to care for the public health and the public safety when endangered by epidemics of disease. Such an answer would mean that compulsory vaccination could not, in any conceivable case, be legally enforced in a community, even at the command of the legislature, however widespread the epidemic of smallpox, and however deep and universal was the belief of the community and of its medical advisers that a system of general vaccination was vital to the safety of all.

This court is not prepared to hold that a minority, residing or remaining in any city or town where smallpox is prevalent, and enjoying the general protection afforded by an organized local government, may thus defy the will of its constituted authorities, acting in good faith for all, under the legislative sanction of the state. If such be the privilege of a minority, then a like privilege would belong to each individual of the community, and the spectacle would be presented of the welfare and safety of an entire population being subordinated to the notions of a single individual who chooses to remain a part of that population. The court is unwilling to hold it to be an element in the liberty secured by the Constitution of the United States that one person, or a minority of persons, residing in any community and enjoying the benefits of its local government, should have the power thus to dominate the majority when supported in their action by the authority of the state.

In order, however, to prevent misapprehension as to its views, the court thinks it appropriate to observe that the police power of a state, whether exercised directly by the legislature, or by a local body acting under its authority, may be exerted in such circumstances, or by regulations so arbitrary and oppressive in particular cases, as to justify the interference of the courts to prevent wrong and oppression. Extreme cases can be readily suggested. Ordinarily such cases are not safe guides in the administration of the law. It is easy, for instance, to suppose the case of an adult who is embraced by the mere words of the act, but yet to subject whom to vaccination in a particular condition of his health or body would be cruel and inhuman in the last degree. The court is not to be understood as holding that the statute was intended to be applied to such a case, or, if it was so intended, that the judiciary would not be competent to interfere and protect the health and life of the individual concerned. But, until otherwise informed by the highest court of Massachusetts, this court is not inclined to hold that the Massachusetts statute establishes the absolute rule that an adult must be vaccinated if it be apparent or can be shown with reasonable certainty that he is not at the time a fit subject of vaccination, or that vaccination, by reason of his then condition, would seriously impair his health, or probably cause his death.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are marked below.

American Medicine, Philadelphia.

April 22.

1 *1. Transmanual Auscultation. 2. Ulnar Palpation. D. Riesman, Philadelphia.
2 The Destructive Skin Diseases: Epithelioma, Lupus, Vulgaris and Syphilis. H. W. Stelwagon, Philadelphia.
3 Cholecystitis. R. Lilienthal, New York.
4 Study of Homogenized Cultures of Tubercle Bacilli. R. C. Rosenberger, Philadelphia.
5 *Typhoid in Relation to the Urban and Rural Population of the United States. S. Egbert, Philadelphia.
6 *Cure by Operation of an Intractable Pronated Foot. W. Hoke, Atlanta.

1. **Transmanual Auscultation and Ulnar Palpation.**—Transmanual auscultation consists in auscultating through the hand placed on the precordia, and can be used satisfactorily only with one of the newer binaural stethoscopes. This method greatly facilitates the timing of a murmur inasmuch as the palpation and the auscultation are done at the same time and place. Almost equally good results can be obtained by placing the finger, flexed at a right angle, on the apex beat and then resting the stethoscope lightly on it. The principal advantage of transmanual auscultation will be found in distinguishing presystolic from systolic murmurs. The successful practice of the method presupposes the existence of a palpable heart-beat. The method may also be of value in timing peculiar murmurs having a wide area of diffusion. Ulnar palpation consists in laying the ulnar side of the hand in each interspace successively while the patient counts. The palpating surface must be placed firmly in the interspace, the hand being held almost at a right angle with the chest. It is advisable to stand a little to the side of the patient and to use the same hand for both sides of the chest. The method gives accurate information and enables one to discover small shades of difference in the fremitus of contiguous interspaces and of corresponding areas on the two sides. It has its best field in the diagnosis of effusions, especially in determining the upper level of the exudate. As a rule, it is practiced most successfully on the front of the chest. It is not offered as a substitute for the method of palpation now in use, but as an addition to it.

5. **Urban and Rural Typhoid.**—Egbert shows by reference to the United States Census Report of Vital Statistics for 1900 that typhoid is much more prevalent in the rural portions of the country than in cities. This is attributed to the unsanitary conditions prevalent in many towns and villages that, being under 8,000 in population, are too small to be classed with the urban, and which, therefore, make up a large part of the so-called rural population. The paper concludes as follows: 1. That although proper education in sanitary matters is essential and necessary throughout the whole country, it is especially important in so far as it relates to the causation and dissemination of typhoid in the localities indicated by the charts shown in connection with the paper. 2. That it is the duty of the medical profession in these particular localities not only to do all they can to educate the public along these lines, but also to impress their typhoid patients with the necessity of the utmost care as to disinfection, both during the illness and long after the convalescence. 3. That the medical practitioners should not only join hands with all progressive citizens, but should be the first to urge the improvement, purification and care of public water supplies, and should likewise use every reasonable means to induce those depending on private sources, whether in town or country, to protect themselves against the danger of infection. That it is likewise the duty of the members of the profession to help to secure for their respective localities and states uniform and satisfactory methods and laws governing the registration of vital statistics, not only because these are direct agents for the increase of sanitary information and knowledge, but because they also always react to bring about marked improvement in the sanitary conditions of the people supplying the statistical data.

6. **Intractable Pronated Foot.**—Hoke reports three cases in which the head of the astragalus was abducted and fixed in a pronated position by bone union at the astragulo-fibular ar-

ticulation. After the astragalus had been released the usual methods of treatment resulted in a perfect anatomic and functional result. Hoke says that these cases are frequently overlooked, and emphasizes the necessity of carefully palpating the ankle in examining flat feet in order to determine whether the astragalus is fixed.

Medical News, New York.

April 22.

6½ Alcohol as Food, R. H. Chittenden, New Haven, Conn.
7 Alcohol in Disease. G. L. Peabody, New York.
8 What the State of New York Is Doing for the Insane. F. Peterson, New York.
9 *Abdominal Nephrectomy, with Illustrative Cases. N. Jacobson, Syracuse, N. Y.

9. **Abdominal Nephrectomy.**—Attention is called by Jacobson to the surgical conditions which not only demand the removal of the kidney, but in which existing manifestations indicate that the preferable route for its removal is through the abdomen. Two conditions are encountered which can be more easily and more safely met by the abdominal operation. The first depends on the size of the mass, which may be so great that it can be removed through the back only with great difficulty. The second consideration is the presence of extensive adhesions which can not be freed satisfactorily through the lumbar incision. Therein lies the great advantage of the abdominal route. If the surgeon is able to see what he is doing, his work is greatly simplified and done with greater safety and dispatch. The establishment of drainage through the loin Jacobson looks on as an essential feature of abdominal nephrectomy. He does not recommend the abdominal operation in preference to the lumbar in all nor in the greater number of cases requiring nephrectomy. When the tumor is of great size, when it is placed well down in the pelvis, when it is fixed by adhesions, when, in a word, it is necessary to have an abundance of room in order to expose the field of operation for the reasons mentioned, the abdominal route is less dangerous than the lumbar. Four cases are cited: a hydronephrosis due to abnormal origin of the ureter, with nephrolithiasis; a hydronephrosis due to calculous obstruction and subsequent traumatism; an enormous hydronephrosis due to acute insertion of the ureter, and a tuberculosis of the kidney with extensive suppuration and destruction of the organ.

Medical Record, New York.

April 22.

10 Visual Function the Cause of Slanted Handwriting; Its Relation to School Hygiene, School Desks, Malposture, Spinal Curvature and Myopia. G. M. Gould, Philadelphia.
11 Simple Ulcer of the Stomach and Its Surgical Treatment. J. J. McGrath, New York.
12 Erysipelas with an Excessive Production of Fibrin. R. Floyd, New York.
13 Acute Posterior Periurethral Abscess. F. C. Walsh, Washington, D. C.

New York Medical Journal.

April 22.

14 Value of the Radiograph in Diagnosis. S. Tousey, New York.
15 Hematoma of the Vulva and the Vagina. I. L. Hill, New York.
16 Symptomatology and Diagnosis of Atypical Forms of Pneumonia. J. C. Wilson, Philadelphia.
17 Nasal Obstruction as a Cause of Disorders of Nutrition. P. Fridenberg, New York.
18 Malnutrition in Young Children. T. W. Kilmer, New York.
19 Inflammation of the Glands of Bartholin. C. C. Miller, Chicago.
20 *Method of Measuring the *X*-Rays. M. Franklin, New York.
21 Review of the Treatment of Inflammatory Conditions of the Throat by Irrigation and Description of a New Irrigator Tip. E. L. Kellogg, New York.

20. **Method of Measuring X-Rays.**—Franklin proposes a method which is based on the power of the *x*-rays to ionize the gases through which they travel. The method, excepting for necessary modifications, to make it conform with the special requirements of the *x*-rays, is substantially analogous to that now commonly employed to measure the radioactivity of the radioactive substances. Air is rendered a conductor of electricity by the ionizing agent, and measurement of the amount of current flowing through it under given conditions gives an absolute index of the activity of the radiation. The instrument used, the electroscope, is charged by having brought into contact with the knob a rod of vulcanite which has been electrified by friction. The knob is brought into communication with a filament while the vulcanite is in contact and is released as soon as the filament has assumed a horizontal position. The electroscope is brought to the same distance from the tube as the patient or plate (in any position) and while the tube is running the shutter is open, and the time in seconds occupied by the filament in transit is noted. The number of seconds is the exact coefficient of energy of the rays, and when compared with any other reading made, under any circumstances whatever, with a similar instrument, the ratio of energy of the two radiations will equal that of the two times. The apparatus used is described in detail.

The Boston Medical and Surgical Journal.

April 20.

22 *Method of Producing Ether Narcosis by Rectum. J. H. Cunningham, Jr., and F. H. Lahey, Boston.
23 *Serum Treatment in Multiple Infectious Arthritis. E. G. Brackett, Boston.
24 *Communicability of Cerebrospinal Meningitis. E. M. Buckingham, Boston.

22. **Ether Narcosis by Rectum.**—Experience has shown, say Cunningham and Lahey, that with this method of producing narcosis with ether, the patient passes under the influence of the drug rapidly and with no sense of suffocation; that less ether is used, not only in producing the narcosis, but also in maintaining it; that the stage of excitement is lessened or absent; that the ether recovery is more rapid, and that the disagreeable after-effects of inhalation ether narcosis are diminished or absent. It is also noteworthy that alcoholics pass through the stage of excitement with little if any resistance or struggling. Although the greater part of the ether is eliminated through the lungs, the direct irritation of the concentrated vapor is overcome and postoperative pneumonia should be lessened. A free and continuous access to the field of operation is a great advantage to the surgeon. In operations on the head, face, mouth, nose, throat, ear, eye and neck, the absence of the ether cone not only lessens the technical difficulties of the operation, but also minimizes the chances of sepsis and lessens considerably the time necessary to perform the operation. To overcome irritation of the rectum the authors use a specially devised apparatus for producing narcosis. To obtain the best results it is essential that the bowels should be thoroughly cleaned out. The authors report 41 cases, 17 of which received ether by mouth preliminary to the rectal method and 24 cases which were started by rectum. Among this series were cases of fracture of the skull, tubercular glands of the neck, carcinoma of the upper lip, skin graft, plastic operations on the face, adenoids, amputation, circumcision, osteotomy, etc. The apparatus used and the method of administration are described in detail.

23. **Serum Treatment in Multiple Infectious Arthritis.**—Brackett reports on the use of antistreptococcus serum in the treatment of 4 cases of multiple infectious arthritis. In 2 the acute stage was shortened very markedly; in 1 other, which was more extensive and subject to frequent and persistent exacerbations, the acute attacks were done away with and the general condition was very much improved. In the fourth the injections were given in the quiescent stage and with no result. In these cases, the greater the reaction from the injection, the more rapid and more decided the improvement. It would seem that the time of election for the trial of such measures is the acute stage, when there is a marked sensitiveness, pain and progression of the disease, given only with the idea of cutting short this stage, so that the greater resulting deformity and stiffness be lessened, allowing the later treatment to be begun at an earlier period. It in no way does away with the work to be accomplished after the acute stage is over. The amount of serum used in these cases varied from 1 to 10 c.c. The upper part of the back or the side of the thorax was chosen for the site of the injection.

24. **Communicability of Cerebrospinal Meningitis.**—Buckingham attempts to show that living in the same room and breathing the same air with patients ill with cerebrospinal meningitis is not of itself dangerous; that some other way of transmission must be sought.

St. Louis Medical Review, St. Louis, Mo.

April 22.

25 Gonorrheal Rheumatism. G. F. Lydston, Chicago.
26 The Etiology of Nervous Affections. T. H. Evans, Philadelphia.

Lancet-Clinic, Cincinnati.

April 22.

27 Traumatic Tetanus. R. Carothers, Cincinnati.

28 Ectopic Pregnancy. F. F. Lawrence, Columbus, Ohio.
29 Etiology of Ectopic Gestation. H. B. McCall, Kansas City, Mo.
30 Use of a Normal Saline Solution in Surgery. L. G. Bowers, Richmond, Ind.
31 Two Mastoid Cases; Death from Cerebral Complications. L. R. Culbertson, Zanesville, Ohio.

Archives of Ophthalmology, New Rochelle, N. Y.
March.

32 *Use of Paraffin Spheres in Frost's Operation (Modified Mules'). C. M. Spratt, Minneapolis.
33 Case of Probable Rupture of the Optic Nerve. W. N. Sharp, Indianapolis.
34 Congenital Deficiency of Abduction Associated with Impairment of Adduction, Retraction Movements, Contraction of the Palpebral Fissure and Oblique Movements of the Eye. A. Duane, New York.
35 *Studies in Light Sense. P. J. Hay, Birmingham, England.
36 Thrombosis of the Central Vein of the Retina in Chlorosis. T. Ballaban, Lemberg.

32. **Paraffin Spheres in Frost's Operation.**—For the purpose of obtaining a permanent movable stump on which to wear an artificial eye, Spratt has been inserting paraffin globes in Tenon's capsule in 23 cases. Among these there was but one failure. The causes for enucleating were as follows: Injuries, 8; disorganized globe, 8; staphyloma, 2; glaucoma, 2, and keratoiritis, 3. The spheres are prepared as follows: Paraffin with a melting point of about 60 C. is melted and filtered through ordinary filter paper into clean test tubes. These are stopped with cotton and placed in a steam sterilizer. When they have become cool and the paraffin is solid, the glass is heated in hot water or over a flame until the layer of wax next to the glass is liquid. The central solid paraffin rod is readily removed and placed in a warm solution of bichlorid. With a knife, this long, candle-like piece of wax is divided into suitable sized pieces, and while yet warm is rolled into spheres. These spheres are kept for future use in a wide-mouthed bottle containing a 5 per cent. solution of formalin. The most convenient-sized sphere is one 17 mm. in diameter. Spratt believes that the insertion of a paraffin sphere in Tenon's capsule is the operation of choice in all cases requiring the removal of an eye, except when a malignant growth involves the orbital tissue or when panophthalmitis is present. In the former case exenteration of the orbit, in the latter condition evisceration with good drainage of the scleral cavity, are the operations preferred. The modified Mule's or Frost operation combines the cosmetic results of Mule's with the advantages of simple enucleation. These are: 1. Good cosmetic results; good motion of the artificial eye; no recession of the eye; contact with the lids. 2. Secretions will not accumulate in the hollow behind the eye, as this is occupied by the stump. 3. No danger of overlooking malignant intraocular tumors. 4. Best prophylaxis against sympathetic ophthalmia. Paraffin is the most suitable material for the prothesis because it is non-irritating and least likely to be extruded; the spheres can be easily made and are inexpensive; there is no danger of their being broken, and the paraffin adapts itself to the shape of the cavity, is soon surrounded by fibrous capsule, and is firmly held in place by connective tissue growths.

35. **Studies in Light Sense.**—Hay has devised a new photometer and summarizes the results obtained from its use as follows: Refractive errors, if low, do not affect the light sense; if high, they tend to increase the light difference. Vitreous opacities increase both the light minimum and the light difference. Choroiditis, other than syphilitic and disseminated choroiditis, affects both the light minimum and the light difference. The light minimum is generally more affected than the light difference, but not invariably so. The implication of the light sense seems to vary in extent according to the position of the lesion. It appears to be more impaired if the lesion is close to the macula. Glaucoma chiefly increases the light difference, and this may be one of the earliest signs of the disease. Optic atrophy generally affects the light difference, but there are cases in which the light minimum is very much increased. Retinitis increases both the light minimum and the light difference. Affections involving the internal layers of the retina more than the external ones do not seem to affect the light sense as much as those situated in the external layers.

Illinois Medical Journal, Springfield.
April.

37 *Clinical Experiences with Sauerbruch's Operative Cabinet. D. B. Hahn, Breslau, Germany.
38 Something About Urethritis. H. Crutcher, Chicago.
39 *Attempt to Use the Electric Conductivity of Urine for Clinical Purposes. G. Kolischer and L. E. Schmidt, Chicago.
40 Tricuspid Obstruction Associated with Mitral and Aortic Lesions. J. M. Patton, Chicago.
41 Gastroenterostomy. A. H. Ferguson, Chicago.

37. **Sauerbruch's Cabinet.**—Hahn describes the incidents leading to the invention of this cabinet, which was first suggested by Mikulicz for the purpose of avoiding pneumothorax during intrathoracic operations. A cabinet constructed according to Sauerbruch's plans has been used by Mikulicz on several occasions with a fair degree of success. The heart, esophagus and chest wall have been operated on successfully by various operators. For a description of the cabinet see THE JOURNAL of Nov. 5, 1904, p. 1424.

39. **Electric Conductivity of Urine.**—Taking as a starting point the idea that the vitality and normal and abnormal status of any tissue can be tested by observing its reactions to certain interferences brought to bear on it, and that certain stains brought into the circulation will apear at different times and with different intensity in the urine, Kolischer and Schmidt investigated whether or not the secreting efficiency of normal and abnormal kidneys might be influenced in a way peculiar and characteristic for normal and abnormal conditions of secreting tissue. As the most sensitive test they resorted to the test of electric conductivity, and as a method of staining they selected hypodermic injections of indigo carmine. They found that any increase after staining of electric conductivity beyond 10 international ohms is characteristic of impaired health of the kidney. If this increase stays inside the limit of 20 ohms the kidney still may be considered as safe in a surgical sense; that is, it can reasonably be expected to be of sufficient functional capacity to attend to the eliminating process after its mate is removed. The authors feel that they will be able to determine whether a given individual will react as to his kidneys favorably or unfavorably to the administration of a general anesthetic.

Laryngoscope, St. Louis.
March.

42 History of the Laryngoscope. S. Thomson.
43 Observations on the Human Voice. M. Garcia.
44 Pioneers of Laryngology. F. C. Ewing.
45 *Chronic Laryngitis. E. F. Ingals, Chicago.
46 *Laryngo-Tracheal Injections. T. Hubbard, Toledo.

45. **Chronic Laryngitis.**—Ingals says that from 80 to 90 per cent. of his cases of catarrhal laryngitis result from nasal obstruction or, at least, are kept up by that condition. In these the nasal trouble must be removed in order to cure the larynx.

46. **Laryngo-Tracheal Injections.**—Hubbard says that in ordinary bronchial affections properly administered tracheal injections take the place of so-called stimulating expectorants, and during the period of convalescence from acute bronchitis the recuperative power of the patient is decidedly fortified and nutrition is favored by relieving the gastrointestinal tract from the disturbing influence of cough sedatives and expectorants in syrups *ad nauseam*.

Chicago Medical Recorder.
April 15.

47 Two Cases of Complete Perineal Prostatectomy by Young's Technic. J. Franik, Chicago.
48 *Infiltration Anesthesia in General Surgery. R. M. Parker, Chicago.
49 Treatment of Chronic Obstructive Rhinitis. G. P. Head, Chicago.
50 Infant Mortality. W. J. Butler, Chicago.
51 Insurance for the Working Man. D. Lewis, Chicago.
52 Criminal Abortion from the Coroner's View Point. J. E. Traeger, Chicago.

48. **Infiltration Anesthesia in General Surgery.**—The solution which Parker has found most satisfactory for general use is the following:

℞.	Cocain hydrochlorate ..... gr. iiss	1
	Sodium chlorid ..... gr. x	6
	Suprarenal ext. (1-1,000) .... gr. lxxv-℥iiss	5-10
	Aquæ dest. q. s. ad	100

Sixty c.c. of this solution will suffice for the large majority of operations, although the entire 100 c.c. can be used safely at one sitting. Parker has employed infiltration anesthesia to relieve his patients of the small amount of pain in those slight operations which are usually done without any anesthetic, such as aspiration of the chest, tapping of an ascites, vaccination.

He has used the method about twenty-five times for the latter purpose and has found it very satisfactory. The absolute contraindications to infiltration anesthesia are: 1. Insurmountable fear on the part of the patient. 2. Where muscular relaxation is required. 3. In plastic operations where infiltration would destroy relations.

Denver Medical Times.

April.

53 Neurasthenia in Pulmonary Tuberculosis. J. E. Courtney, Denver.
54 *General Septic Peritonitis. I. B. Perkins, Denver.
55 Normal Obstetrics, the Physiology of Labor. T. M. Burns, Denver.

54. **General Septic Peritonitis.**—Perkins urges an early diagnosis and immediate operation. Free flushing of the abdominal cavity with removal of all poison possible is of the greatest importance when the infection is general. An elevated position, draining the contents of the abdomen into the pelvis, the point of greatest resistance, is of great benefit. In profoundly septic cases in which general infection is present adhesions form slowly, allowing frequent subsequent flushing of the abdominal cavity with hot salt solution, which does no harm and aids materially by removing large quantities of toxic material from the abdomen. The subcutaneous or intravenous dose of salt solution is valuable in that it dilutes the poison, lessens the toxemia and stimulates the kidneys to free action. Free catharsis should be obtained at the earliest possible moment, and should be kept up during the entire convalescent period, thereby aiding in the elimination of much septic material which has been cast into the bowel and which would be reabsorbed if left alone. Furthermore, troublesome adhesions are less liable to form if the bowel is kept active. The use of some cathartic salt in the water used for washing out the stomach aids materially in establishing peristalsis.

The Therapeutic Gazette, Detroit, Mich.

April 15.

56 *Antitoxin Treatment of Diphtheria, with a Plea for Rational Dosage in Treatment and in Immunizing. B. F. Royer, Philadelphia.
57 Treatment of Sciatic Neuritis. C. Pope, Louisville.
58 Malarial Hemoglobinuria, or Hemorrhagic Malarial Fever. W. E. Sparkman, Georgetown, S. C.
59 *Treatment of Yellow Fever. A. M. Fernandez de Ybarra, New York City.

56.—See abstract in THE JOURNAL of February 18, p. 568.

59. **Treatment of Yellow Fever.**—The great desideratum in the treatment of yellow fever, says de Ybarra, is not to disturb the stomach and to relieve the congestion of the kidneys. The hot mustard foot-bath relieves cerebral congestion and headache and often induces free perspiration followed by sleep. Applications of ice or of cold water to the head, face, hands or back during the febrile stage are dangerous, because they produce a sudden cooling of the body surface and increase the existing congestion of the viscera. Sinapisms over the epigastrium relieve pain in the stomach as well as visceral congestion. Diaphoresis and diuresis should be promoted by means of large draughts of lemonade made with seltzer water, hot decoctions of orange leaves, Vichy or soda water, or by rectal injection of fresh water. Opium, in whatever form, should never be given. Neither are stimulants indicated, except in some cases in which the patient has been in the habit of using them. Iced champagne is best. When the pulsations of the heart fall to 50 or 60 a minute digitalis should be given. Proper alimentation is of prime importance. During the onset of the attack no food should be given, and until convalescence is fully and completely established no solid food should be given to the patient. Absolute rest in bed in a ventilated room without draughts of air, of even temperature, is very important to the successful treatment of yellow fever. More essential than that is a calm and hopeful state of the mind and spirit of the patient.

Colorado Medicine, Denver.

April.

60 The *X*-Ray in the Diagnosis of Bone and Joint Injuries and Diseases. S. B. Childs, Denver.
61 *Indications for Nephropexy. J. N. Hall, Denver.
62 Unique Case of Traumatic Hernia. R. W. Corwin, Pueblo.
63 Operative Treatment of So-Called Medical Diseases. J. G. Sheldon, Telluride.
64 Puerperal Sepsis. A. F. Hutchinson, Durango.
65 Genius and Insanity. H. T. Pershing, Denver.

61. **Indications for Nephropexy.**—According to Hall, the majority of cases of movable kidney demand no operation. The degree of mobility should influence the surgeon's judgment but little as to the advisability of operation, for marked symptoms exist with but little displacement oftentimes, and vice versa. Cases in which no symptoms exist are distinctly non-operable. The same is true of the movable kidney often seen in wasting diseases, notably in tuberculosis, and in the old and feeble. Operation is distinctly indicated in cases presenting symptoms of indigestion, loss of weight, debility, and albumin and casts in the urine; cases in which following a fall or other injury, symptoms attributable to a floating kidney immediately supervened; the occurrence of Dietl's crises; floating kidney associated with chronic appendicitis; cases in which the symptoms are chiefly those of nervousness, debility and lack of ability to stand work, without marked neurasthenia, aching pain in the kidney region, always worse after exercise; intermittent hydronephrosis and cases in which various nerve pains exist from pressure on the genitocrural nerve.

Bulletin of the Johns Hopkins Hospital, Baltimore.

April.

66 Surgery of the Posterior Mediastinum; Its Past and Future. J. D. Fauer, Paris.
67 Aplastic Anemia Associated with Lymphoid Hyperplasia of the Bone Marrow. G. Blumer, San Francisco.
68 Preliminary Communication Regarding an Immune Body Capable of Inhibiting the Development of Cancer in Mice (Adeno-Carcinoma, Jensen). G. H. A. Clowes.
69 Multiplex Slide-Holding Device. E. F. Miller.
70 Dr. Heinrich or Henry Keerl of Baltimore, The "Hessian Surgeon." E. F. Gordell.
71 Bacillus Aerogenus Capsulatus in Puerperal Infection. H. M. Little, Baltimore.

The Physician and Surgeon, Detroit and Ann Arbor.

March.

72 Tribute to Albert B. Prescott. V. C. Vaughan, M. L. D'Ooge and E. D. Campbell.
73 Crime and Criminals, and What Shall be Done with the Latter. H. Hatch, Quincy, Ill.

The Archives of Physiological Therapy, Boston.

March.

74 Radioactivity. A. D. Rockwell, New York City.
75 Cataphoric Diffusion of Metallic Ions in the Destructive Sterilization of Cancer and Tuberculous Deposit. G. B. Massey, Philadelphia.
76 Roentgen Ray Diagnosis of Calculi. R. H. Boggs, Pittsburg.
77 Radium in Surgery. J. Rudis-Jicinsky, Cedar Rapids, Iowa.
78 *X*-Ray in Tubercular Adenitis. M. C. Rice, Chicago.

Southern Medicine and Surgery, Chattanooga, Tenn.

April.

79 Treatment of Placenta Previa. J. B. De Lee, Chicago.
80 Movable Kidney: Its Causes, Symptoms and Diagnosis. B. L. Hillsman, Richmond, Va.
81 Tuberculous Meningitis. S. D. Acuff, Knoxville.
82 Treatment of Dysentery. W. F. Waugh, Chicago.

Old Dominion Journal, Richmond, Va.

April.

83 Operations on the Gasserian Ganglion. J. S. Horsley, Richmond.
84 Hemorrhages at Confinement. C. Roberson, Greensboro.
85 Comments on the So-Called Radical Operation for Long-Standing Purulent Otorrhea. J. Dunn, Richmond.

Southern California Practitioner, Los Angeles.

April.

86 Los Angeles Versus Eastern Climate. D. W. Edelman, Los Angeles.
87 Mountain Climbing. W. Rodman, Los Angeles.
88 Los Angeles Medical History. G. MacGowan, Los Angeles.
89 Uncinaria Duodenalis, or Hookworm Disease. D. S. McCarthy, Los Angeles.
90 Uncinaria Duodenalis (Hookworm Disease). Its Presence in Porto Rico and Treatment Suggested. L. L. Seaman.

Columbus Medical Journal.

April.

91 Recent Views as to Etiology of Diabetes. J. H. J. Upham, Columbus.
92 Medical Study and Care of Inebriety. T. D. Crothers, Hartford.
93 Endometritis. E. G. Lupton, Gallipolis.
94 Review of 1,000 Operations for Gallstone Disease, with Especial Reference to the Mortality. W. J. and C. H. Mayo, Rochester, Minn.

Virginia Medical Semi-Monthly, Richmond.

April 7.

95 Contribution to Study of Dislocations of First Carpometacarpal Joint. D. P. Hickling, Washington, D. C.
96 Pain as Symptom in Urinary Diseases. C. G. Cumston, Boston.
97 Cocain in Surgery; with Special Reference to Its Use in Operations for the Cure of Hernia. J. S. Horsley, Richmond.
98 Treatment in Influenza. W. F. Waugh, Chicago.
99 Observations in Typhoid; with a Report of 153 Cases. H. G. Nicholson, Charleston.

100 Ectopic Gestation Twice in the Same Patient within Eleven Months. H. A. Royster, Raleigh, N. C.
101 X-Ray Burns. L. R. McCready, Grand Rapids, Mich.

Northwestern Lancet, Minneapolis.

April 15.

102 Etiology, Diagnosis and Treatment of Acute Inflammations of the Anterior Group of the Nasal Accessory Sinuses. W. R. Murray, Minneapolis.

Medical Fortnightly, St. Louis.

April 10.

103 Interesting and Unusual Complications in Typhoid. W. Lloyd, Philadelphia.
104 Biliary Obstruction as a Cause of Nephritis. M. F. Porter, Ft. Wayne.
105 Nature and Treatment of Nosebleed. J. H. Morris, Philadelphia.
106 Relation of Man to Nature (a Study Prompted by "Testimonials of the Sepulchres"). A. A. Ashmead, New York.

St. Paul Medical Journal.

April.

107 Complete Excision of the Bladder for Carcinoma. A. Schwyzer, St. Paul.
108 Use of Creosote in Treatment of Pulmonary Tuberculosis. H. L. Taylor, St. Paul.
109 Intermittent Gastric Hypersecretion. J. S. Gilfillan, St. Paul.
110 Chronic Adherent Pericarditis (a Study of 55 Cases). G. D. Head, Minneapolis.
111 Trained Nurse. W. Courtney, Brainerd, Minn.

American Practitioner and News, Louisville, Ky.

April.

112 Acute Abdominal Disturbances. Are They Ever Functional and Temporary, or Are They Always Organic and Inflammatory? E. Marshall.
113 Albuminuria: Its Significance and Detection. W. A. Jenkins, Louisville.
114 Hygiene of Tuberculosis. M. F. Coomes.
115 Phimosis in Infancy and Childhood. C. G. Russman.
116 Diseases of the Bronchi. M. S. Allen.

Kansas City Medical Index-Lancet.

April.

117 Nervous Diseases of Children and Their Relation to School Life and Work. J. Punton, Kansas City.
118 Retention of Urine in the Male; Its Causes, Diagnosis and Treatment. H. E. Pearse.
119 Vaginal Celiotomy or Anterior Colpotomy. H. C. Crowell, Kansas City.

The Journal of Nervous and Mental Disease, New York.

April.

120 Bilateral Cervical Sympathectomy for the Relief of Epilepsy, with Report of Three Cases; Notes on the Physiologic Effects of Cutting the Sympathetic, and on the Histologic Changes Found in the Cases in Question. W. P. Spratling, Sonyea, N. Y., and R. Park, Buffalo, N. Y.
121 Myelomalacia, with Especial Reference to Diagnosis and Treatment. F. W. Langdon, Cincinnati.
122 Traumatic Epilepsy in Its Medicolegal Relations. A. C. Brush, New York City.

Bulletin of the American Academy of Medicine, Easton, Pa.

April.

123 How May the Public Schools Be Helpful in the Prevention of Tuberculosis? S. A. Knopf, New York.
124 Considerations Regarding Medical Inspection in the Public Schools. E. Jackson, Denver.

The Post-Graduate, New York City.

April.

125 Memoranda Relating to the Discovery of Surgical Anesthesia, and Dr. William T. G. Morton's Relation to this Event. W. J. Morton, New York.
126 Etiology and Constitutional Treatment of "Bright's Disease." W. H. Foster, New York.
127 Interesting Case of Adherent Intestine Cured by Operation. L. Weber.
128 Syphilis of the Liver with Perihepatitis. H. A. Houghton, Bayside, L. I.
129 Two Cases of Recovery from Toxic Amblyopia. D. B. St. John Roosa.
130 One Case of Primary Carcinoma of the Jejunum. R. H. Halsey and E. W. Peterson.

The Canada Lancet, Toronto, Canada.

April.

131 Forty Years and After—A Reply to Dr. Osler. J. Ferguson, Toronto.
132 Maternity Packet. A. G. A. Fletcher.
133 Canadian Society for the Prevention of Tuberculosis. E. J. Barrick, Toronto.

Kentucky Medical Journal, Louisville.

April.

134 Dental Advice to the General Practitioner. H. B. Ray, Tompkinsville.
135 Watching the Pendulum, or the Ups and Downs of Medicines and Measures Since My Short Acquaintance with Medicine. E. B. Willingham, Cunningham.
136 Aneurismal Varix of Left Subclavian. J. D. Trawick, Louisville.
137 Country Obstetrician. W. R. Burr, Auburn.
138 Tubercular Meningitis. G. P. Sprague, Lexington.
139 Hydrophobia. A. S. Brady, Greenup.
140 Experience of a Doctor in the Kentucky Mountains. W. G. Bailey, Millersburg.

Texas Medical Journal, Austin.

April.

141 The Care of the Insane in Texas. M. L. Graves.

Oklahoma Medical News-Journal, Oklahoma City.

April.

142 Downfall of the General Practitioner. M. M. Lively, Blackwell.

Northwest Medicine, Seattle, Wash.

April.

143 Intestinal Intussusception. W. S. Durand, Everett.
144 Pancreatic Inflammations in Their Relationship to Cholelithiasis and Their Treatment. (Continued.) A. W. M. Robinson, London.
145 Acute Leptomeningitis. J. W. Bailey, Seattle.

St. Louis Courier of Medicine.

April.

146 Fallacies, Aims and Methods of Hydrotherapy in Fevers. S. Baruch, New York City.
147 Case of Chronic Seminal Vesiculitis; Removal of the Vesicles; Recovery. B. Lewis, St. Louis.
148 Baby Incubators on the "Pike." (Continued.) J. Zahorsky, St. Louis.

Alabama Medical Journal, Birmingham.

April.

149 Conservative Surgery of the Female Pelvic Organs. W. M. Jordan, Birmingham.
150 Tuberculosis of the Sclera. J. R. Briggs, Dallas, Texas.
151 Importance of Medical Organization which Leads to Higher Medical Education. H. A. Grant, Jackson, Miss.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

April 8.

1 *Surgical Treatment of Ulcer of the Stomach and of Its Complications. B. G. A. Moynihan.
2 Cases Illustrating Alternative Operations for Intestinal Obstruction. A. E. Barker.
3 *Removal of Gall Bladder in a Woman Aged 75. A. W. Addinsell, London.
4 New Methods of Studying Affections of the Heart. J. Mackenzie, Burnley.
5 Obliterative Arteritis, Leading to Gangrene of Extremities in Otherwise Apparently Healthy Men in the Prime of Life. E. Michels and F. P. Weber.
6 *Incidence and Effect of Some Diseases on Others. J. R. Charles.
7 National Importance of the Thorough and Systematic Removal of Adenoids in Childhood. G. C. Wilkin, London.
8 Fatal Case of Acute Mercurial Poisoning. E. S. Sugden.
9 Case of Acute Strychnin Poisoning in a Child; Recovery. J. R. Pooler.
10 Correct Anatomic Form of Bicycle Pedals. R. A. Lundie.

1. **Surgical Treatment of Gastric Ulcer.**—Since 1897 Moynihan has had under his care 22 cases of perforating ulcer of the stomach or duodenum. There were 14 recoveries (63.6 per cent.) and 8 deaths (36.4 per cent.). There were 7 cases in which a duodenal ulcer perforated and 15 in which a gastric ulcer perforated. In the first 10 cases there were 6 deaths; in the last 12 cases there were 2 deaths. He has operated on 22 patients for the purpose of arresting hemorrhage, which, so far as could be judged, was likely soon to prove fatal. Three patients died; 19 recovered. Excision of the ulcer alone was performed in 1 case, the patient dying suddenly on the eighth day, when apparently doing well. Excision of the ulcer, followed by gastroenterostomy, was performed in 3 cases; 2 patients recovered and 1 died. In the remaining 18 cases gastroenterostomy alone was performed; 17 patients recovered and 1 died. For chronic ulcer of the stomach or duodenum, or both, excluding the cases of acute hemorrhage and of perforation just mentioned, Moynihan performed gastroenterostomy in 153 cases, with 2 deaths. In 1 case gastroplication was performed and later a gastroenterostomy which gave the patient complete relief. In 3 cases pyloroplasty was performed; in 2 of these gastroenterostomy has since been necessary. In 2 cases Finney's operation was performed; both patients recovered. Secondary operations were necessary in 2 cases; in 1 on account of regurgitant vomiting, an enteroanastomosis being performed; in the other vomiting began a few weeks after operation and persisted. This was found to be due to a small hernia through the opening in the mesocolon into the lesser sac. Regurgitant vomiting may be prevented by making the anastomosis as high as possible in the jejunum, and hernia may be prevented by suturing the margins of the opening in the mesocolon to the jejunum near the line of stitches between it and the stomach. Moynihan has

also operated on 20 cases of hour-glass stomach due to simple disease, with 3 deaths. The operations performed were as follows: Gastroplasty in 7, gastroenterostomy in 6, gastroplasty and gastroenterostomy in 2, gastrogastrostomy in 1, gastrogastrostomy and gastroenterostomy in 3, dilatation of stenosis in 1.

3. **Removal of Gall Bladder.**—Addinsell removed the gall bladder from a woman aged 75 because of repeated attacks of jaundice due to gallstones. The neck of the cystic duct was placed in the lower angle of the peritoneal wound. The peritoneum was then closed and the fascia and muscles sewn around the orifice of the duct, but the skin was not attached to the stump. The dressing was changed daily for a week, and several ounces of normal saline solution were injected into the duct daily for seven days. In a month the wound was healed. Two years after operation the patient had improved in general health, had no pain or jaundice and was stronger than she had been for years past.

6. **Incidence of Diseases.**—For the purpose of studying the incidence and effect of some diseases on others, Charles studied the postmortem records of 488 subjects of chronic disease. Of this number 156 patients died with the interstitial form of chronic nephritis. Of these 52 succumbed to the results of secondary infections, which included 31 cases of lobar pneumonia, 3 of bronchopneumonia, 6 of pericarditis, 1 of pulmonary gangrene, 1 of pleurisy, 4 of empyema, 4 of phthisis and 2 of general miliary tuberculosis. Of 37 cases of chronic mixed nephritis 35.8 per cent. of the patients died from secondary infections, consisting of 6 of lobar pneumonia, 2 of pericarditis, 1 of pyemia and 4 of phthisis; while of 22 cases of chronic parenchymatous nephritis 31.8 per cent. of the patients died from secondary infections, including 3 from lobar pneumonia, 1 from bronchopneumonia, 2 from pericarditis and 1 from peritonitis. With the exception of congenital heart disease, cirrhosis of the liver is the worst predisposing factor for secondary infections. Of 45 cases 44 per cent. of the patients succumbed to a secondary infection, namely, 7 from lobar pneumonia, 3 from bronchopneumonia, 1 from empyema, 1 from pyemia, 2 from tuberculous peritonitis, 4 from phthisis and 2 from general miliary tuberculosis. Cirrhosis of the liver was associated with cirrhotic kidneys in 17 cases. Of the cases which might be classed as primary arteriosclerosis 19 per cent. of the patients died of pneumonia. Only 1 among 8 deaths from congenital heart disease was due to phthisis, although 3 patients died from pneumonia and infantile diarrhea respectively. Secondary infections were responsible for over 15 per cent. of the deaths which occurred among 109 subjects of chronic valvular disease. Pneumococcic infections were the most numerous, being 14 times more common than tuberculous infection. Six patients out of a series of 31 cases of diabetes succumbed to phthisis, while of 18 patients who died either from coma or convulsions, recent pulmonary tuberculous lesions were found in 4. Non-tuberculous gangrene of the lungs and pneumonia occurred in 2 cases. Charles also discusses in this connection, epilepsy, blood diseases, cancer and tubercle, and chorea and rheumatism, but does not mention any statistics.

The Lancet, London.

April 8.

11 Some Considerations on the Nature of Diabetes Mellitus. W. C. Bosanquet.
12 Dissemination of Mammary Carcinoma. W. S. Handley.
13 Mental Disorders of Decay. G. H. Savage.
14 *Investigation into Causation of Puerperal Infections. A. G. R. Foulerton and V. Bonney.
15 *Case of Multiple Neurofibromatosis. H. Littlewood, W. H. M. Telling and S. G. Scott.
16 *Treatment of Tuberculosis of the Lungs by Means of Tuberculin and Other Bacterial Derivatives. H. B. Shaw.
17 *Case of Esophageal Pouch Successfully Treated by Excision. A. Boyce Barrow and J. Cunning.

14. **Causation of Puerperal Infections.**—The results quoted by Foulerton and Bonney were obtained from the examination of 54 cases in which fever, slight or severe, occurred after either miscarriage (6 cases) or labor at full term. In each of the 54 cases a detailed bacteriologic examination of the contents of the uterus was made, and all bacteria present on the primary culture tubes were isolated in pure culture and studied. In nearly all of these cases a similar examination was made of the vaginal secretion. With a view of obtaining other information a complete bacteriologic examination of the contents of the uterus was made in 12 cases after a normal labor and a normal puerperium. The authors also examined the secretion of the cervical canal of 30 women who showed no signs of pregnancy. In the 12 cases of normal labor the contents of the uterus proved sterile of bacteria. Out of 48 cases of fever after labor at full term, 12 terminated fatally, giving a mortality of 25 per cent. Of 34 cases in which, after labor at full term the temperature rose to above 102, 12 patients died, giving a mortality for this group of 35.3 per cent. In 48 cases of fever after labor at full term the contents of the uterus were sterile in 15 and contained bacteria in 33; the case mortality when bacteria were present in the uterus was 36.3 per cent.; in the other group of cases no deaths occurred.

15. **Multiple Neurofibromatosis.**—At the necropsy in this case tumors were found near the sacrum; in front of the eleventh rib; in the substance of the left pectoral muscle; beside the rectum; in the course of the right median nerve; opposite the left rhomboid muscle; in the substance of the left soleus; in connection with the great sciatic nerve at the edge of the left gluteal muscles; in the course of the left pneumogastric on both sides; in connection with the sympathetic; in the angle between the innominate and carotid arteries; in connection with the plexus gulæ; at the esophageal opening in the diaphragm; in the hepatic fissure; in the spinal canal; in the cauda equina; within the dura mater, and on the posterior root of one of the lowest dorsal nerves.

16. **Treatment of Pulmonary Tuberculosis with Bacterial Derivatives.**—Shaw reviews the treatment of pulmonary tuberculosis by means of various sera and bacterial derivatives, and the results obtained. He says that judging from the evidence at hand, it seems that the use of the tuberculins materially improves the results of treatment, and that, therefore, it is quite justifiable to supplement the ordinary treatment by sanatorium methods with this specific one. Tuberculin treatment is of little use alone.

17. **Esophageal Pouch.**—The symptoms in the case cited by Barrow and Cunning simulated those produced by a malignant disease of the esophagus, plus regurgitation of food, which, on examination, was found not to contain free hydrochloric acid. It was also possible, by making pressure at the base of the neck, to squeeze up gas. A large esophageal bougie met an obstruction of some kind eight inches from the teeth. At the operation there was found at this point, to the left and behind the esophagus, a white fibrous coated pouch one and a half inches long. The neck of the pouch was in the lower part of the posterior wall of the pharynx. The fibrous coat of the neck of the pouch was divided and turned back as a cuff. The mucous membrane was ligatured and cut through, and the fibrous coat was stitched up over it. A few stitches were put in to bring the muscular coat together over the site of the neck of the pouch. The patient was fed by nutrient enemata for seven days, and at the end of a fortnight was discharged with the wound healed and able to swallow any kind of food.

Journal of the Royal Army Medical Corps, London.

April.

18 Local Influences in Enteric Fever and Their Investigation. R. J. S. Simpson.
19 Hints for Beginners on the Development, etc., of *X*-Ray Negatives. H. Henry.
20 Cox's New Platinum Contact Breaker, for Use with Spark Coils. W. F. Stevenson.
21 *The Active Immunization of Experimental Animals with Typhoid Cell Juices. A. B. Smallman.
22 Medical Notes on War. E. B. Knox.
23 *Local Analgesia. J. W. Houghton.
24 Researches on Malaria. R. Ross.
25 *Zittman's Treatment for Syphilis. G. H. Sylvester and C. B. Crisp.
26 Malignant Syphilis. H. C. French.
27 Report on Enteric Fever Among the Personnel of No. 4 General Hospital Mooi River, Natal, with Reference to Drinking Water Filtration. H. H. Johnston.
28 *Modification of the Telephone Bullet Extractor. W. Sheen.
29 Seven Cases of Perforating Gunshot Wounds of the Skull. G. E. Moffet.

21. **Immunization with Typhoid Cell Juices.**—The purpose of the inquiry made by Smallman was to test the feasibility of preparing a bacteria-free and fluid vaccine, and of standardizing the same, not in terms of bacilli, but in terms of the soluble immunizing substance it might happen to contain. The

material was obtained with the aid of the cold-grinding method employed by MacFadyen and Rowland. The typhoid organisms were grown on the surface of agar bottles, at blood heat, for about 20 hours. The growth was washed off with salt solution and the bacteria spun out in a high-speed centrifuge. The spun-out bacteria were next reduced to the consistency of a pasty mass on the surface of a Chamberlain filter, and triturated at the temperature of liquid air. The resultant mass was taken up in salt solution and centrifugalized. The cell juice was, as a rule, equivalent to a 10 per cent. solution of the intracellular constituents contained. This typhoid cell juice, as Smallman terms it, contained from .15 to .2 per cent. of solid matter. It was injected subcutaneously into guinea-pigs, and after varying intervals of time the protection afforded was tested by the intraperitoneal injection of virulent typhoid bacilli. The dose ranged from .06 to .006 c.c. of typhoid cell juice. The smaller dose had the same protective effect as the larger, and that after a period of eleven days. A protective effect was demonstrable with a dose of 1/1000 c.c. at the end of seven days. A series of animals which had been inoculated with 0.25 c.c. of the cell juice was tested on the tenth day after injection. Out of 5 guinea-pigs tested 4 survived an injection of from 3 to 5 lethal doses of the typhoid bacillus. Smallman is convinced that a bacteria-free and fluid typhoid vaccine can be prepared by the mechanical method employed, and that a very small amount of the soluble constituents of the typhoid organism is necessary for the active immunization of experimental animals.

23. **Local Analgesia.**—Houghton comments on the value of local analgesia produced by the injection of B. eucain and adrenalin chlorid. Some of the operations in which he has employed this solution are: 1. Removal of a cystic tumor attached to the periosteum of the scalp. 2. Removal of a fibroma attached to the posterior aspect of the left trochanter, involving dissection from the bone. 3. Opening a knee joint for removal of loose cartilage. 4. Excision of five varicose veins. 5. Excision and ligature of external piles in a case where chloroform was inadmissible. 6. Opening and draining abscess of liver. 7. Varicocele. 8. Laparotomy for perforating enteric ulcer.

25. **Zittman Treatment of Syphilis.**—Sylvester and Crisp have subjected 23 cases to this method of treatment. Of these 18 went through the treatment once, 4 twice, 1 thrice. In 17 cases a great deal of good resulted; in 2 there was some improvement only; in 1 there was very slight improvement only; in 3 there was practically no result. In all these cases there was considerable gain in weight after the treatment and the general condition was greatly improved. Ulcers, when present, became smaller and often dried up, and syphilitic pains in the joint generally became less severe. The authors say that, taken as a whole, the Zittman treatment seems to have much more effect on skin and connective tissue lesions, and in improving the general health and causing increase in weight, than it has on cases suffering from syphilitic pains in the joints.

28. **Modified Telephone Bullet Extractor.**—The ordinary Hedley's telephone probe has been modified by Sheen so as to increase its utility and to insure asepsis when it is in use. The wire connecting the probe with the telephone receiver has a fixed covering of rubber for two feet nearest to the probe. This part of the apparatus can, therefore, be boiled or immersed in a disinfectant. The silver probe used is graduated in centimeters. It retains its original form, blunt at one end, and pointed at the other. Two pairs of forceps have been constructed. They are graduated in centimeters from the extremities of their jaws. The smaller pair is a slender, rounded forceps 17 cm. long, and is intended especially for brain work, having the joints situated as near to the handles as is consistent with adequate rigidity so as to minimize the excursion of the blades. The larger pair, 21 cm. long, is more strongly constructed for general work, and is in pattern similar to the well-known "French" model of bullet forceps. In each pair of forceps the jaw part of one blade is grooved obliquely on its interior from base to point, the groove running a very short distance on the outer aspect of the forceps. When the probe has detected the foreign substance this groove permits the forceps to be slid along the probe down to it. For attaching the forceps to the telephone wire a piece of stout silver wire, No. 6 French catheter gauge, is used. This wire fastens into an attachment on the handle of the forceps, and its use permits all parts of the apparatus that may come in contact with the wound area to be sterilized by boiling.

Bristol Medico-Chirurgical Journal, London.

March.

30 *Prevention of Apoplexy. T. C. Allbutt.
31 Some Notes on Examinations for Life Assurance. R. S. Smith, Bristol.
32 *Nephropexy by Means of the Application of Strong Carbolic Acid and Temporary Support, with Report of 8 Cases. T. Carwardine.
33 *Advantages of Enucleation of the Tonsils Over Their Removal by the Guillotine. E. W. H. Groves.

30. **Prevention of Apoplexy.**—Allbutt contends that prevention of apoplexy must lie first in the detection of a special tendency to a persistent mean rise of the arterial blood pressure. If this tendency be detected in its earlier phases, in many instances it can be reduced and kept down; but the longer the story, the older the rearrangement of parts, the harder reduction becomes. Every adult of the age of 40 and upward should have his blood pressures measured by the best instruments available every five years until the age of 60, when, if there be no great increase, the danger of apoplexy may be disregarded. Persons showing a persistent rise of mean pressure should be advised to revise their mode of living, to take regulated exercise, to abstain from alcohol, and to reduce the intake of food.

32. **Nephropexy.**—Carwardine describes his method as follows: The transverse or the oblique lumbar incision is employed, the patient lying on the side with the opposite loin supported by a pillow in order to increase the ileocostal space, although the longitudinal dorsal incision can be made if preferred. The muscles are in part divided and in part separated in the direction of their fibers. On complete division of the lumbar aponeurosis all excess of loose perirenal fat is excised. The kidney is stripped of its surroundings and is then brought carefully onto the loin by its lower pole, the body and upper pole following. Gauze pads are placed in the wound, and the whole surface of the exposed kidney is thoroughly painted with strong liquid carbolic acid two or three times by means of a swab held in pressure forceps. The upper pole in particular should receive thorough treatment. The gauze is then removed and the kidney is replaced in its normal position. The center of a strip of iodoform gauze some 18 inches long is next placed around the lower pole of the kidney to act as a loose temporary sling during the granulating stage, and after the anterior part of the wound has been sutured a second piece is inserted lightly down to the kidney, and over this the two ends of the first piece are tied together loosely. This securely anchors the kidney for the time. Plenty of absorbent dressing is applied, a firm pad of absorbent wool is placed over the hypochondrium in front, and the whole is secured by a carefully adjusted binder. The wound may be dressed every other day during the first week, the gauze packing being renewed when necessary. The sling of gauze may be left for ten days, or a fortnight, or longer, if necessary. The recovery in each of the 8 cases in which Carwardine employed this method was perfectly satisfactory. From a careful examination of the cases so treated he thinks it impossible for the kidney to become loose again.

33. **Enucleation of Tonsils.**—It is suggested by Groves that if the tonsils have to be removed, the aim should be to remove them completely, and this can only be done by enucleation in a number of cases occurring chiefly in adults. Furthermore, enucleation should be resorted to without delay in those cases of recurrent tonsillitis in which the whole tonsil lies buried behind the level of the fauces. The advantages of the operation are that it insures complete and thorough removal of the gland, thus securing a relief from annoying throat symptoms which can not be obtained in any other way; and the operation is performed more easily than the one usually resorted to—removal by guillotine. Its only drawback is that it requires a deep anesthesia by ether or chloroform. There are no dangers in the operation apart from the anesthetic. Hemorrhage is less than in the cutting operation, and can be

reduced to a minimum by a preliminary injection of 5 minims of a 1 in 1,000 solution of adrenalin chlorid into each peritonsillar region. There need be absolutely no fear of wounding the internal carotid artery.

Revue de Gynécologie, Pozzi's, Paris.

Last indexed page 427.

34 (VIII, No. 6.) *De la dégénérescence néoplasique des ovaires dans le cancer de l'utérus. F. Jayle and E. Papin.
35 *Le sarcome primitif de l'estomac (of stomach). P. Lecène and J. Petit.
36 (IX, No. 1.) *Etudes sur les hémorragies des grands Kystes de l'ovaire sans torsion du pédicule. C. Daniel.
37 *Eventration abdomino-vulvaire droite. Mauclaire.
38 Note sur 2 cas de hernies avec glissement du gros intestin, descente du rein et déviation de l'aorte (with sliding down of large intestine and kidney, etc.). A. Baumgartner.
39 *Duration of Process of Reduction of Oxyhemoglobin in Abdominal Surgery and in General Pathology.—De la durée de la reduction de l'oxyhemoglobine. E. Duroux (Lyons).
40 *La cure esthétique des hernies. H. Morestin.

34. **The Ovaries in Case of Cancer of Uterus.**—Jayle and Papin advocate the systematic removal of the ovaries with the uterus in all cases of uterine cancer. Even when the ovaries are apparently sound, they may be histologically affected, and they are liable to have a primary epithelioma develop in them sooner or later. In one of Jayle's cases a cancer developed in the ovary five years after vaginal hysterectomy for cancer of the body of the uterus. In another case a primary cysto-epithelioma developed in both ovaries after abdominal hysterectomy for cancer of the cervix. Cases of direct propagation or metastasis to the ovaries are not rare, and the ovary is also liable to be the seat of a papilloma or fibroma, with or without evidences of epithelioma.

35. **Primary Sarcoma of Stomach.**—Lecène and Petit add another to the 58 cases on record of primary sarcoma of the stomach. The most common variety is that which projects into the abdominal cavity as a large symmetrical tumor, sometimes even being pedunculated. Gastric sarcoma may simulate gastric carcinoma from the clinical point of view, or it may develop without any symptoms on the part of the stomach, and may suggest merely an abdominal tumor. The youth of the patients (17 to 20, as a rule), aids in differentiating the sarcoma. Thirty-four cases from the literature, not operated on, are summarized, and 23 in which an operation was performed. The patients were generally extremely debilitated before surgical interference, but about a dozen were cured by it.

36. **Hemorrhages in Case of Ovarian Cysts.**—All kinds of ovarian cysts are liable to bleed inside. The hemorrhage is favored by degeneration of the coats of the cyst and by rupture, puncture or other complication. The signs of the hemorrhage vary with its amount, and according as the effusion makes it way into the walls or into the cyst proper or into the peritoneum. The diagnosis is easy when the hemorrhage is severe, but otherwise it is usually first discovered during the operation. Laparotomy without delay should be the rule in every case of a bleeding ovarian cyst. Even during pregnancy, the same rule prevails. Pinard asserts that all danger of interrupting the pregnancy may be averted by systematic use of injections of morphin during the days after the operation. Daniel gives a résumé of 18 cases from the literature.

37. **Postoperative Hernia and Its Cure.**—A woman of 35 had been operated on for double salpingitis. Hernia in the median line developed a few months later, the hernial sac finally sliding into the right labium. The hernia was cured by suturing the neck of the sac and then turning it back sideways on itself to form a three-fold cover for the opening; this cover was then sutured to the aponeurosis of the rectus.

39. **Reduction of Oxyhemoglobin as Test of Vitality.**—Duroux bases this test on the fact that the life of the tissues depends on the life of the oxyhemoglobin. The latter is reduced by the tissues with more or less facility in proportion to its vitality. Reduction with ammonium sulphid of oxyhemoglobin from different specimens of blood always proceeds the same in case the blood is normal. The variations from this standard behavior are characteristic and instructive. Two drops of blood drawn from the finger are examined in the spectroscope and the two broad black bands characteristic of oxyhemoglobin are noted. Two drops of ammonium sulphid are then placed on top of the blood. In case the blood is normal the two black bands will be seen to draw closer together by the sixtieth second, and by the seventieth second they blend into a single band. In case of a person in shock, the oxyhemoglobin will be found inert; the normal interchanges are suspended, and the oxyhemoglobin is no longer able to preside over them. In this case its bands in the spectrum are likewise inert and show no tendency to blend into a single band, even after one, two or three minutes, until they finally creep together and reduction and fusion take place. On the other hand, in blood from a febrile subject the bands fly together and rapidly unite to make a single band by the thirtieth second. The pulse rate is another element that may be regarded in the diagnosis from the reduction of oxyhemoglobin. In a normal subject, with a 70 pulse the reduction of the oxyhemoglobin occurs in 70 seconds. Hence we can say that 70 divided by 70 equals 1, the normal standard. In 30 healthy persons the reduction occurred invariably at the seventieth second. The difference did not once surpass 5 to 10 seconds. In 34 patients with cancer, the reduction did not occur under 95 seconds in a single instance and the average was in the neighborhood of 2 minutes. In 5 traumatic cases, the reduction required 3 minutes in some cases, but as the patients recuperated reduction occurred in 85 seconds, and returned to normal as recovery progressed. Jaboulay things that there can be no question that an operation, a traumatism, a brain affection or an infection can act on the nerve centers that control the respiratory functions and also on the blood-forming organs. Under the influence of an anesthetic, these nerve centers suspend their functioning more or less. The incitation which they transmit to their agents is, therefore, lessened and deteriorated in quality or it is suspended altogether. The oxyhemoglobin, thus suffering from lack of normal control, gives up its oxygen sluggishly. The whole series of phenomena observed is essentially a slowing of the nutritional processes for the time being. If the inhibition of the centers is complete, the nutritional processes are not only slower than normal, they are liable to be suspended altogether, and we behold traumatic shock. The sum of the reflexes is liable to be so large in such a case that the inhibition may be total and death may ensue before the oxyhemoglobin has shown the least tendency to reduction. His clinical experience has fully confirmed these assumptions. Cases of dementia with stupor are like the Hindoo fakirs. They can exist for months on a quart or a pint of milk and yet they keep in the same condition, as the reduction of their oxyhemoglobin proceeds so slowly that the combustion of their tissues is retarded likewise and their vitality is husbanded. In fever, the reverse is observed. The centers are irritated and perform their functions in a hasty, irregular way. The oxyhemoglobin is unable to retain its oxygen and yields it at once to the tissues, which soon become exhausted and used up by their over-active combustion.

40. **Esthetic Treatment of Hernia.**—Morestin describes with 5 illustrations the technic by which he operates in case of inguinal or other hernia without leaving a perceptible scar. The incision is very short, in the hair above the pubis, and the results in his 12 cases have been remarkable satisfactory. He epitomizes the salient points of each.

Archiv f. Gynäkologie, Berlin.

Last indexed page 252.

41 (LXXIV, No. 1.) Origin of Intramuscular Branching of Lumen of Tube.—Zur Frage der Enstehung intramuscularer Abzweigungen des Tubenlumens. O. Hoehne.
42 Serum-Behandlung bei Puerperal-Fieber. H. Peham.
43 Benign Tumors of Ovary.—Zur Kenntnis der gutartigen bindegerwebigen Neubildungen des Ovariums, insbes. der Myome. G. L. Baso.
44 Thrombosis in Puerperium.—Thrombose und Embolie im Wochenbett, sowie die auf. derselben Grundlage beruhenden Lungen-Erkrankungen der Wöchnerinnen. A. Richter.
45 Die Leukocytose in der Gravidität, intra- und postpartum, und die Leukocytose Neonatorum. J. Arneth.
46 Carcinoma clitoridis. C. Schmidlechner (Budapest). Two cases.
47 Perithelioma labii majores. Id.
48 Ulcus vulvæ rodens Virchow. Id.
49 Origin and Significance of Leucocytosis.—Zur Frage der Entstehung und Bedeutung der Leukocytose. R. Bernbaum.
50 Is It Superfluous to Suture the Peritoneum After Vaginal Hysterectomy?—Ist die Peritonealnaht nach vaginaler Total-Extirpation des Uterus überflüssig? K. Czerwenka.

51 (No. 2.) *Artificial Interruption of Pregnancy; 228 Cases.—Ueber die künstliche Unterbrechung der Schwangerschaft durch die Bougiemethode. Erfahrungen über die Indikation und Methode aus 228 Fällen. Jacoby (Mannheim).
52 Action of Streptococcus on Uterine and Vaginal Mucosa.—Experimentelle Untersuchungen über die Einwirkung des Streptococcus pyogenes auf die Schleimhaut der Gebarmutter und der Scheide. G. Heinricius.
53 Accumulation of Blood with Double Genitalia and One Side Occluded.—Ueber Blutänhaufung bei doppelten Genitalien unit Verschluss einer Seite. R. Katz.
54 *Beitrag zur Klinik der Ovarialtumoren. W. Lippert.
55 Ueber die Genese, Diagnose und Therapie der Pyo-Tubo-Ovarial-Cysten. O. Schaeffer.

51. **Artificial Interruption of Pregnancy with the Bougie.**—Jacoby reports 228 cases and states that the mortality was 4 in the last series of 121 mothers. In 50 cases of contracted pelvis, 31 of the children, 65 per cent., were born alive. The article issues from Mermann's maternity at Mannheim. The morbidity of the bougie deliveries was no higher than that of the normal births. The cases are grouped by indications. The bougie used was about 8 to 10 mm. in diameter, and it never failed to accomplish its purpose.

54. **Ovarian Tumors.**—Lippert reviews 638 cases of ovarian tumors or parovarian cysts operated on at Zweifel's clinic, at Leipsic. The total mortality was 5.17 per cent. In the malignant cases, the mortality was 13 per cent. and in the non-malignant 3.7 per cent. Five patients succumbed to embolism of the lungs. The operations had been exceptionally complicated in these cases, with adhesions, or a supplementary fixation of the uterus or herniotomy. With one exception, the embolism occurred in the second week, as the patients were convalescing finely. No overexertion was known in any case as cause of the embolism. The patients were lying quietly in bed when taken with dyspnea, which proved fatal in twenty minutes at farthest. The origin of the emboli could not be discovered in one case, but in the others thrombosis in the pelvic or hypogastric veins was evident.

Münchener medicinische Wochenschrift.

56 (LII. No. 12. March 21.) *Treatment of Epidemic Cerebrospinal Meningitis.—Zur Behandlung der epidemischen Genickstarre. H. Lenhartz.
57 *Die Resultate der prophylaktischen Impfung mit Diphtherie-Heilserum im städtischen Mariahilf-Krankenhause zu Aachen. F. Wesener.
58 *Blood in Tuberculosis.—Blutuntersuchungen bei der Tuberkulose der Lungen und bei der Tuberkulinkur. J. Arneth.
59 "Thinned-out Regions" in Central Nervous System.—Ueber sogenannte "Lichtungsbezirke" im Zentralnervensystem. H. Schmaus.
60 *Ueber menschen-pathogene Streptokokken. E. Fraenkel.
61 *Ueber hydroelektrische Behandlung der Herzfunktionsstörungen (of functional heart disturbances). G. Zimmermann.
62 *Ueber die Dilatation zikatrizieller Stenosen der Speiseröhre durch das Oesophagoskops. A. Reizenstein.
63 *Ueber Pseudo-Aszites bei Ovarial-Tumoren und dessen klinische Bedeutung. K. Hörmann.
64 *Diagnosis of Death from Drowning.—Weiterer Beitrag zur gerichtsärztlichen Diagnostik des Ertrinkungstodes. Revenstorf.

56. **Treatment of Epidemic Cerebrospinal Meningitis.**—Lenhartz has had occasion to treat 45 cases of epidemic cerebrospinal meningitis during the last ten years. His experience has confirmed him more and more in the belief that systematic and repeated lumbar puncture has a decided and favorable effect on the disease. He gives several case reports in detail to show the marked benefit that followed the punctures. In the case of one young woman the punctures were repeated daily for six days and then twice more at longer intervals. The cerebrospinal fluid was under pressure of 360 and 430 at the two first punctures, and 14 and 24 c.c. of the fluid were allowed to escape. It was very turbid. The leucocytes numbered 22,000 once, but generally ranged from 15,000 to 19,000. He cites also a case illustrative of the group in which the punctures were first made late in the case to ward off threatening acute hydrocephalus. The aggravation of symptoms about the fortieth day suggested this complication and puncture showed a pressure of 490 and 320 mm. After escape of 25 and 37 c.c. the condition improved remarkably, but severe symptoms recurring two days later, the punctures were repeated morning and evening and again the next morning, after which the patient, a young man of 21, was able to sit up for an hour. This was the sixty-seventh day of his illness, and complete recovery soon followed. No ill effects from the punctures were observed in any instance; the technic is simple and easy, and can be applied in the home. He warns against allowing more than 50 c.c. of the cerebrospinal fluid to escape. The Weichselbaum-Jäger intracellular diplococcus was found in 40 out of his 45 cases.

57. **Antidiphtheria Serum as Prophylaxis of Diphtheria.**—Wesener reviews his experience with 1,745 cases of diphtheria at Aix. It is his practice to inform the person accompanying the sick child to the hospital of the danger of the spread of the disease, and to propose to give all the children in the family a preventive injection of the serum if they are brought to the hospital. This is usually done, and nearly two hundred and fifty of such injections have been made. Only 4 of the children thus protected contracted the disease, and in 3 it developed within forty-eight hours, showing that it must have been already installed. In the single failure in the series the disease was so mild that it seemed to be merely an ordinary sore throat, but the discovery of diphtheria bacilli caused it to be accepted as genuine diphtheria. The protection conferred by the injections is not absolute, but it enables the isolation of the patient to be less strict. The period of protection lasts about three or four weeks; this is usually sufficient for the purpose if the premises are disinfected.

58. **The Blood in Tuberculosis and Under Tuberculin Treatment.**—Arneth's original views in regard to the behavior of the leucocytes in infections were summarized in THE JOURNAL on page 577 of the last volume. The blood is always much altered in case of febrile tuberculosis, he affirms. Examination of it from time to time will show the progress that is being made under treatment. When the blood findings remain bad, although other signs indicate recovery, the prognosis is unfavorable, and vice versa. Almost all the remedies and measures recognized as beneficial in tuberculosis possess the property of stimulating the leucocytes, and it is to this property that they owe their effect, as they increase the capacity of assimilation and nutrition of the neutrophiles. These cells act only in the way of reaction, that is, after having previously had some increased demand made on them. This renders the possibility of the discovery of some ideal active cure a very remote one. But it renders more promising the prospects of the ultimate discovery of some sovereign cure by way of passive immunization.

60. **Pathogenic Streptococci.**—Fraenkel describes the peculiarities of the two kinds of streptococci which Schottmüller segregated by his blood-agar plate cultures. One of them, the *Streptococcus viridans,* seems to be concerned in the production of certain forms of endocarditis distinguished by a protracted course and special temperature curve. The other, the *S. mucosus,* seems to be involved in the production of true fibrinous lobar pneumonia. Fraenkel urges that greater attention should be paid to bacteriologic examination of the blood from the heart postmortem. Very valuable and reliable information can thus be derived.

61. **Electric Baths in Heart Disease.**—The capability of the heart to respond to stimuli is the criterion as to the possible efficacy of hydroelectric procedures. There must be a reserve force to call on, and this is the main point, not how much the organ is hypertrophied. As general indications for the alternating current baths, he accepts disturbance in the circulation with low blood pressure, signs of incipient failure of compensation, moderate fatty infiltration with general corpulence, and atonic conditions of the heart muscle and arteries. In advanced cases of sclerosis of the heart and arteries, the indications are more for the Nauheim baths. A combination is excellent in certain cases.

62. **Esophagoscopy in Dilation of Stenosis of Esophagus.**—Reizenstein has found it possible to work a flexible sound through what had appeared to be an absolutely impermeable stricture before the esophagoscope had been introduced. He relates some of his experiences. Among them is that of a small child who preferred esophagoscopy to blind groping with sounds. Cocain can be dispensed with for the esophagoscopy.

63. **False Ascites in Case of Ovarian Tumors.**—The necessity for exploratory celiotomy, even when sure of malignant disease, is well brought out by the 2 cases reported by Hörmann. The symptoms imposed the diagnosis in one case of cancer of the ovaries with metastases in the cul-de-sac and

hydromphalocele with considerable ascites. The tumor was the size of two children's heads, but proved to be a benign pseudomucinous cystadenoma, and the effusion had been the pouring out of its secretion through a perforation. This fluid had induced symptoms of irritation in the cul-de-sac, and they had been accepted as malignant metastases. If it had not been for the routine practice of exploratory laparotomy in every case at von Winckel's clinic, this one would have been deemed inoperable as the diagnosis and hopeless prognosis were considered beyond all question.

64. **Medicolegal Points in Death from Drowning.**—Revenstorff epitomizes his article in the following statements: Hemolysis of the blood is one of the earliest macroscopic signs of putrefaction. It is not due to physical influences nor to autolytic processes, but rather to bacterial action. The blood in the portal vein shows this cadaveric hemolysis most; next comes the blood of the right heart and of the afferent vessels, while the left heart and the arterial system show the hemolysis least. If an anisotonic fluid makes its way into the capillaries or lung tissue and thus comes in contact with the blood corpuscles—provided that there is enough difference between the concentration of the fluid and that of the body fluid—the blood corpuscles involved become dissolved. This is what he calls "drowning hemolysis." This drowning hemolysis differs from the ordinary cadaver hemolysis by the fact that the serum of the left heart shows a higher degree of hemolysis than the serum of the right heart. Lung tissue juice, pleural transudate and pericardial fluid, if they do not contain any free hemoglobin, are free from admixture with the drowning medium. Edema caused by presence of water always has a serum containing hemoglobin. A colorless serum indicates true lung edema. The drowning hemolysis is a qualitative sign of death from drowning which is more delicately accurate than any other physical method of determining the presence of the drowning fluid in the blood. The lack of appearance of pigment in the contents of the portal vein, with the existence of drowning hemolysis in the blood of the heart, is a positive sign that the drowning fluid did not diffuse until after cessation of the movement of the blood in the heart.

Wiener klinische Rundschau, Vienna.

Last indexed page 750.

65 (XIX, No. 4.) Pre-Columbian Bones.—Ueber präkolumbische Knochenfunde im Hinblick auf die Frage über die Provenienz und das Alter der Syphilis. J. Neumann.

66 Beitrag zur Osophagoskopie der gutartigen Osophagusgeschwülste. L. Harmer.

67 *Mental Disturbances in Revival After Hanging.—Zur Kasuistik der Geistesstörungen bei Erhangten nach Wiederbelebung. B. Bayerl.

68 (No. 5.) Angina, Erythema exsudativum multiforme, Pleuritis exsudativa dextra. D. Epstein (Kiev).

69 (No. 6.) Thermo-elektrische Versuche zu diagnostischen Zwecken. W. Goebel.

70 Ueber einige seltene Fälle von Brustdrüsenerkrankungen (unusual cases of mammitis). B. Müller. (Concluded.)

71 (No. 8.) Das Manifest-Werden latenter Darm-Stenosen infolge Peritoneal Infektion. E. Fuchsig.

72 Ein Beitrag zur traumatischen Lungenhernie. Durlacher. (Concluded.)

73 (No. 9.) *Die neuen Erfahrungen und Fortschritte auf dem Gebiete der Pathologie der Wutkrankheit (rabies). E. Bertarelli (Turin).

74 Aneurysma der Aorta ascendens und Aneurysma der Arteria innominata mit Durchbruch in die Vena cava superior. C. Hödlmoser. (Concluded.)

75 Inhalation, ein wertvolles therapeutisches Hilfsmittel. A. Bulling (Reichenhall).

76 (No. 10.) Ueber disseminierte Fettgewebsnekrose der Bauchhöhle (fat tissue necrosis in abdomen). B. Müller.

77 (No. 12.) Neurologische Kasuistik. A. Fuchs. (Commenced in No. 10.)

78 *Influence of Cortex on Menstruation and Treatment of Menstrual Disturbances by Hypnotic Suggestion.—Der Einfluss zerebraler Momente auf die Menstruation, etc. H. Delius. (Commenced in No. 11.)

67. **Mental Disturbances After Revival from Hanging.**—A young man arrested for murder tried to commit suicide by hanging, but was revived. As the vital functions were restored the patient was found in acute mania, with dilated, non-reacting pupils, etc. This maniacal condition lasted for several days and gradually subsided. He never showed any evidences of mental disturbance before or after.

73. **Italian Researches on Rabies.**—Bertarelli reviews the work that has been done in Italy during the last two or three years on the etiology, diagnosis and treatment of rabies. He states that in more than a thousand tests, the Negri bodies were never found in animals that were free from rabies, as determined by inoculation of rabbits. On the other hand, they were always found in infected animals with only 3 exceptions, and in these only a part of the nervous system had been examined. These constant findings suggest that examination of the hippocampus major—their chosen site—will decide that the case is one of rabies in case of positive findings, while negative findings almost inevitably exclude the disease. It is wise, however, to make a supplementary test by inoculation of rabbits. Mere examination of the hippocampus major will be found sufficient in most cases, and will thus simplify the procedures in case of a suspected animal. The scraps of the hippocampus may be hardened in saturated sublimate solution or in absolute alcohol; the staining is best done by the Mann eosin-blue technic or by fixing the scraps in osmic acid, leaving them then for a few hours in alcohol. Sections can then be made by hand and may be tested at once in glycerin, or after treating with balsam, when the Negri bodies show up black at once. This simplified technic, dispensing with other staining and embedding in balsam, has proved very successful in practice at Turin. It is advisable to have a few scraps of the cerebellum and some ganglia ready in case of negative findings. Extensive research by numerous Italian investigators has established that it is impossible to produce these Negri bodies by any artificial measures, and that they are never observed in any condition except rabies. Volpino has presented evidence to show that these bodies contain each a central, basophile small body, which consists of two parts with different staining affinities. The saliva of rabies patients is sometimes virulent and sometimes not. Nitsch has tried to solve the question as to the harmlessness of "fixed virus" by injecting a certain amount subcutaneously into his own abdomen. Several months have since elapsed and he has shown no symptoms of any kind from this source. Valenti of Pavia has recently demonstrated that quinin is able to neutralize the virus of rabies in the test tube and also in the living subject, while no other alkaloid has displayed this property. This, Bertarelli remarks, confirms the assumption as to the protozoon nature of the Negri bodies and suggests new therapeutic possibilities. [The Negri bodies are described as being found usually inside the cells, but exceptionally outside. They consist of a fundamental, non-granulated substance, homogeneous, resembling coagulated albumin in appearance, with bright spaces which may be smaller bodies or merely vacuoles. Very rarely the bodies assume peculiar shapes, curved or long drawn out or fragmented. They react to an iodoiodid solution like the red corpuscles, but the smaller bodies or vacuoles take the stain fainter. These central dots respond with blue instead of red to the methylene blue-eosin stain. D'Amato reported extensive research on the Negri bodies in the *Riforma Medica* last year, Nos. 23 and 45, 1904. His results confirmed those of previous workers. Poor's work in this line was summarized in these columns, recently, page 1401.—ED.]

78. **Hypnosis in Treatment of Menstrual Disturbances.**—Delius writes from Hanover to report his successful experience in curing by suggestion painful menstruation or restoring the menses after long amenorrhea, or arresting excessive menstrual bleeding. He regards menstrual disturbances in general as an evidence of altered excitability of the brain cortex, inducing general nervousness, neurasthenia, hypochondria or hysteria, which manifest themselves in disturbances in the menstrual functions. The excessive or deficient discharge is governed by the same exaggerating or inhibiting influences that induce nervous diarrhea and nervous constipation. The pains are due to the centripetal stimuli which are too weak to cross the "stimulation threshold" in normal individuals. In the overexcitable cortex of the cases in question, these stimuli are perceived as painful sensations. He tabulates the particulars of 60 cases treated by application of hypnosis, which he regards as an excellent means to reduce the overexcitability of the cortex and to restore normal transmission of stimuli. The difference between waking suggestion and suggestion in the hypnotic sleep is only a question of degree; there is no qualitative difference between them. Every abnormal menstruation irritates anew the overexcited neuron in the cortex, and this reduces the "stimulation threshold" still lower each time.

Suggestion, re-enforced by encouraging and stimulating advice, will raise the stimulation threshold until the neuron no longer feels the stimulus, and thus gets a chance to recuperate, and soon its normal balance is restored. Among his patients was one woman of 32 who complained of uterine colic every fourteen days. A single hypnotic sitting cured the pain and restored the normal interval. Climacteric hemorrhage was also controlled in a single sitting in 2 instances. Only a single one of the 60 patients proved refractory to the suggestion. Amenorrhea for more than a year, with recurrence of pains each month, was promptly and permanently cured by a few sittings at the onset of the monthly period, repeated the second month. In one case a dysmenorrheic opera singer begged to have the menses advanced a few days to allow her to fill a certain engagement. In another case of nervous prostration the patient made the same request to enable her to start on a journey at a certain date. Suggestion in hypnotic sleep in each case produced the desired effect. The period recurred regularly and painlessly afterward. He found somnambulism in more than 41 per cent. of his 60 cases while in a series of cases of constipation it occurred in only 19 per cent. He ascribes this difference to the large numbers of anemic patients in the menstrual series. Chlorotic subjects generally respond with deeper sleep than others.

Russky Vratch, St. Petersburg.

Last indexed page 1235.

79 (III No. 5.) *Acute Ileus in Connection with Gynecologic Affections.—Ob ostroe neprokhodimosti kishek s svyazi s zabolyevaniyami zhenskikh polovykh organov. G. T. Tzeidler.

80 *Saline Infusion in Treatment of Mental Disease.—Solevya vlivaniya v terapii dushevnykh bolyeznei. B. S. Greidenberg.

81 Electric Baths in Treatment of Cardiac Insufficiency.—O lyetchenii nedostatotchbosti serdetchnoi myshtzy posredstvom vann s 3-phazym sinusoidalym peremyennym tokom. A. A. Ekk.

82 (No. 6.) *Radical Treatment of Cancer of Uterus.—O korennom lyetchenii raka matki. V. N. Orloff.

83 (No. 7.) Fundamentals of Medicine and Tasks of Medical Societies in Russia.—Principialnya osnovy myshleniya v med., etc. A. D. Pavlovskii.

84 The Individualizing Method for Studying Laws of Growth in Human Body.—Individ. sposob pri izutchenii zakonov rosta, etc. A. O. Karnitzki.

85 Phagocytosis and Leucolysis After Injection of Virulent Streptococci into Abdominal Cavity.—O phagotzitoz i leukoliz pri vprvskivanii v briushniu polost virulentykh streptokokkov. F. V. Bukoemski.

86 (No. 8.) *Omentopexy in Ascites from Cirrhosis of Liver.—Operatziya Talm'y pri briushnoi vodyanki ot cirrhosa petcheni i resultaty eya. V. S. Kozlovski.

87 Sovremennoi sostovanie utcheniya o rozovom shelushashtchemeya lishaye (pityriasis rosea Gibert'a). A. I. Lyanz (Moscow).

88 *Weight of Children in Case of Contracted Pelvis.—Vyes dyetei pri yazkom tazye. S. S. Kholmogoroff.

89 Mineral Mud in Caucasus Resorts. History and Special Features.—O gryazelyetchenii na Kaukazkikh mineralnykh vodakh. Ego istoriya i osobennosti. D. A. Parysheff.

90 (No. 9.) *O t. naz. "vozvrashtchayushtchikheya fibroidakh" matki (recurrent fibroids of uterus). V. S. Gruzdeff.

91 Experimental Study of Heart Muscle.—Ob okotchenyenii serdetchnoi myshtzy. A. N. Zimin.

92 (No. 10.) Fundamentals and Tasks of Operative Obstetrics.—Osnovy i zadatchi op. akusherstva. A. A. Anufrieff.

93 *Technic of Removal of Larynx Under Local Anesthesia.—K technikye vylushtcheniya gortani pod myestnym obezbolivaniem. R. R. Vreden.

94 Technic of Injecting Lymphatics for Specimens.—Sposoby inektzii lymph. sosudov. G. M. Iosiphoff.

95 Decidual Cells in Endometritis.—Detzidualnya klyetki pri endometritakh. F. N. Tabildaroff.

96 Lymphosarcoma in Retroperitoneal Glands in Boy of 3.—Melkoklyetotchkovaya sarcoma zabriushinny zhelez u 3-lyetnei dyevotchki. P. Y. Korolkoff.

97 K biologii trypanosom. V. L. Yakimoff. (Concluded.)

79. **Acute Ileus in Connection with Gynecologic Affections.**—Tzeidler says that 16 or exactly one-fourth of his cases of acute ileus in women presented evidences of pathologic changes in the genitalia, and describes them in detail. He operates at once in these conditions as laparotomy in acute ileus is a comparatively harmless intervention and is borne well by the patient. All but 32 per cent. of his patients recovered; in ileus from other causes the mortality averaged nearly 52 per cent. In 3 of his 5 fatal cases death was due to the progress of a malignant tumor, and in the others to peritonitis.

80. **Saline Infusion in Treatment of Mental Affections.**—Greidenberg advocates subcutaneous injection of physiologic salt solution as a powerfully efficient aid in the treatment of brain troubles. It seems to quiet the psychomotor centers, promote sleep and appetite, and in many cases may be advantageously substituted for the warm bath. The indications for it are psychomotor restlessness, with resulting insomnia and refusal to eat. The patients take the injections without any special resistance. He has thus treated 36 patients; all but 7 were women. The psychosis was acute insanity, generally of a maniacal character, in 10 cases, 4 men and 6 women; periodical and circular psychosis in 8 women; premature weakmindedness in 8 women; mania and melancholia in 2 women each; paralytic dementia in 2 men, catatonia in 1 man and in 2 women, and primary insanity in 1 woman. Each patient received about 5 or 6 injections, the maximum being 15 in a single case. The dose was 250 c.c., gradually increasing to a maximum of 1,500 c.c. The injections were made very slowly, from twenty-five to fifty minutes being devoted to each injection. The patient was placed on a low couch, about 21 inches above the floor, and the injection was generally made in the abdomen. The stimulating effect was evident in some cases after an hour or so, in others not until after three or four hours. The tranquillizing effect in many cases after injection of from 1,000 to 1,200 c.c. was as marked as after a warm bath.

82. **Experiences with Cancer of the Uterus.**—Orloff has operated on 190 patients on account of cancer of the uterus. There has been no recurrence in 23 to date, now three years since the operation, in 9 after five years and in 4 after ten to eleven years, and they all declare that they are perfectly well.

86. **Omentopexy in Case of Ascites with Cirrhosis of Liver.**—Kozlovsky describes the technic of omentopexy as he has performed the operation on 8 patients. He groups and tabulates 168 cases from the literature. In the first group of 51 cases the liver was enlarged; more than 50 per cent. were cured or improved (16 cured and 10 improved). In the second group of 69 cases with atrophic liver, over 42 per cent. were improved (18 cured and 11 improved). In the group of 48 cases in which the liver was of normal size, more than 47 per cent. were improved (14 cured and 9 improved). This gives a total of 78 improved, 7 in which the issue was unknown and 83 in which no improvement was realized. The earlier the operation is undertaken the better the prospects, and especially when the liver is in the phase of hypertrophy.

88. **Weight of Children in Case of Contracted Pelvis.**—The records of deliveries at the Moscow maternity show that the children born in cases of contracted pelvis averaged less in weight and were shorter than the children born of a mother with a normal pelvis. The proportion of boys was larger than under normal conditions. The pelves with a conjugate diameter of 18 cm. or less and a diagonal conjugate of 12 cm. or less are regarded as under normal size; they formed 14.47 per cent. of the total. The second and third children always weighed more than the first one.

90. **Case of Recurrent Fibroids.**—Gruzdeff's patient was a woman of 44. Another fibroid rapidly developed two or three months after removal of the first, and a third after removal of the second. Hysterectomy was then done, but palpation disclosed not long after seven enlarged lymph glands in the abdomen, some as large as an apple. They were removed by a second laparotomy, and the microscope showed them to be sarcomatous. The patient succumbed in a few months to recurrence.

93. **Extirpation of Larynx Under Local Anesthesia.**—Vreden describes his successful removal of the cancerous larynx in a man of 51, under local anesthesia. He performed the operation by Billroth's technic, and used a dozen syringefuls of a 1 per cent. solution of cocain. The patient recovered rapidly from the operation, and was exhibited in fine condition at the national medical congress a few months later. By avoiding general anesthesia Vreden hoped to prevent the postoperative pneumonia which it favors.

Hygiea, Stockholm.

Last indexed page 916.

98 (LXVII. No. 1.) *Measles and Diphtheria.—Morbilli och difteri. T. Hellström.

99 Difteri-bacillens tenacitet vid olika temperatur. A. Alfven.

100 *Radiography of Kidney Stones.—Njursten diagnosticerad medels Röntgenfotograf. T. Stenbeck.

101 *Technic of Publishing Medical Reports.—Nagra ord om sättet att publicera med. afhandlingar. C. G. Santesson.

102 (No. 2.) Experiences with Radical Operation in Chronic Suppurative Otitis Media.—Erfarenheter om den s. k. radikalop. vid kronisk varig otitis media. K. Dahlgren.
103 Om serum-terapiens inflytande pa mortaliteten i difteri och strypsjuka i Göteborg. H. Wennerberg.
104 Behandling of kancer med Röntgen-bestralning. I. Bagge.

98. **Measles and Diphtheria.**—Hellström has had occasion to observe 112 cases of measles as a complication of diphtheria, and 117 cases of diphtheria as a complication of measles, during the last ten years at the Stockholm Hospital. In the first group, when the diphtheria was complicated by croup, only 37 recovered and 61 died, while in the 14 cases without croup all the patients recovered but 1. Forty of these deaths were in children under 3. The mortality in the measles-croup cases was 62.24 per cent., while it was only 27.3 per cent. in the cases of uncomplicated croup. The mortality in the 117 cases of measles after diphtheria was only 8. About 91 per cent. of the patients in this group were under 6, and 81 per cent. of those in the first group. In 21 of the patients the diphtheria before the onset of the measles had been of the croup variety. The respiratory organs did not seem to be more seriously affected in these cases than in those without preceding diphtheria. Only one child exhibited a complicating pleuritis later. Since the introduction of serum treatment the mortality of measles-croup has been reduced by nearly 18 per cent., and most of the deaths occurred in cases not seen until almost moribund. The literature on the subject is analyzed, and the necessity for early recognition of the complicating diphtheria is emphasized. When this possibility is borne constantly in mind and serum treatment is instituted in time, the outcome will be far better than at present.

100. **Roentgen Pictures of Kidney Stones.**—A fine radiogram is given of two large oxalate stones in the kidney of a young woman of 21. For comparison, an ordinary photograph is then shown of a group of kidney stones on a card, with those removed from the patient in the center, and a Roentgen picture of the same group. The latter picture is identical with the aspect of the stones in the radiogram of the living subject. The symptoms had been puzzling during the year preceding the detection of the stones in the kidney with the Roentgen rays, but the patient was soon restored to health on their removal through a lumbar incision.

101. **Brevity in Medical Articles.**—This is considered editorially.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

WHARTON AND STILLE'S MEDICAL JURISPRUDENCE. Vol. I. Mental Unsoundness. Legal Questions. By Frank H. Bowlby of the Publishers' Editorial Staff. Insanity: Forms and Medicolegal Relations. By James Hendrie Lloyd, A.M., M.D., Neurologist to the Philadelphia Hospital. Vol. III. Physical Conditions and Treatment. Medical Aspects by Truman Abbe, A.B. (Harvard), M.D. (Col.), Assistant to the Professor of Surgery and to Professor of Physiology at the Georgetown University Medical School. Legal Aspects. By Frank H. Bowlby of the Publishers' Editorial Staff. Fifth Edition. Cloth. Pp. 1031 and 692, respectively. Price, $18.00 net, in three volumes. Rochester, N. Y.: The Lawyers' Co-operative Publishing Company. 1905.

THE DETECTION OF POISONS AND STRONG DRUGS, Including the Quantitative Estimation of Medicinal Principles in Certain Crude Materials. By Dr. Wilhelm Autenrieth, Professor in the University of Freiburg. Authorized Translations from the Third Enlarged German Edition. By William H. Warren, Ph.D., Professor of Chemistry, Medical Department of Washington University, St. Louis, Mo. Seventeen Illustrations. Cloth. Pp. 222. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co. 1905.

APPENDICITIS. Its History, Anatomy, Clinical Etiology, Pathology, Symptomatology, Diagnosis, Prognosis, Treatment, Technic of Operation, Complications and Sequels. By John B. Deaver, M.D., Surgeon-in-Chief to the German Hospital, Philadelphia. Third Edition, Thoroughly Revised and Enlarged. Containing 64 Full-Page Plates, 8 of Which Are Colored. Cloth. Pp. 492. Price, $7.00. Philadelphia: P. Blakiston's Son & Co. 1905.

FOOD PRESERVATIONS. Their Advantages and Proper Use. The Practical Versus the Theoretical Side of the Pure Food Problem. By R. G. Eccles, M.D., Ph.D., Fellow of the American Association for the Advancement of Science, with an Introduction by E. W. Duckwall, M.S., Member of Society of American Bacteriologists. Paper. Pp. 202. Price, 50c. New York: D. Van Nostrand Co. 1905.

AN INTRODUCTION TO CHEMICAL ANALYSIS, for Students of Medicine, Pharmacy and Dentistry. By Elbert W. Rockwood, M.D., Ph.D., Professor of Chemistry and Toxicology and Head of the Department of Chemistry in the University of Iowa. Second Revised Edition. Illustrated. Cloth. Pp. 255. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co. 1905.

POISONOUS PLANTS OF ALL COUNTRIES, with the Active Chemical Principles Which They Contain; and the Toxic Symptoms Produced by Each Group. By A. Bernhard Smith, Late Acting House Surgeon to Lord Lister, King's College Hospital, London. Pasteboard. Price, 2/6 net. Bristol: John Wright & Co. 1905.

AN INTRODUCTION TO DERMATOLOGY. By Norman Walker, M.D., Fellow of the Royal College of Physicians of Edinburgh. With 49 Full-Page Plates and 50 Illustrations in the Text. Third Edition, Revised and Enlarged. Cloth. Pp. 285. Price, $3.00 net. New York: William Wood & Co. 1905.

THE CONJUNCTIVA IN HEALTH AND DISEASE, Being a Record of Some Research Work. By N. Bishop Harman, M.A., M.B., Cantab, F.R.C.S., Eng., Ophthalmic Surgeon to the Belgrave Hospital for Children. Cloth. Pp. 276. Price, $2.50 net. New York: William Wood & Co. 1905.

JUGGERNAUT, Christian Science Exposed. By W. H. Watson, with 243 Illustrations by the Author. Printed in English, German and French. Cloth. Pp. 69. Price, $1.00. Davenport, Iowa: Investigation Committee, Publishers. 1905.

VACCINE VIRUS: METHOD OF PREPARATION AT THE SERUM LABORATORY, Department of the Interior. Bureau of Government Laboratories, Serum Laboratory. By Paul G. Woolley, M.D. Paper. Manila: Bureau of Public Printing. 1904.

INFORMATION CONCERNING THE MILCH GOATS, U. S. Department of Agriculture, Bureau of Animal Industry—Bulletin No. 68. By George Fayette Thompson, M.S. Paper. Pp. 82. Washington: Government Printing Office. 1905.

EIGHTEENTH BIENNIAL REPORT of the Trustees, Superintendent and Treasurer of the Illinois Northern Hospital for the Insane at Elgin. July 1, 1904. Paper. Pp. 72. Springfield, Ill.: Phillips Bros., State Printers. 1904.

THIRTY-FIRST ANNUAL REPORT OF THE MEDICAL DIRECTOR OF THE CINCINNATI SANITARIUM for the Year Ending November 30, 1904. Paper. Pp. 10. Cincinnati: The Pounsford Sta. Co. 1904.

TWENTY-FOURTH ANNUAL MEETING of the Hamot Hospital Association, with Reports of Managers and Officers. 1904. Paper. Pp. 65. Erie, Pa.: Herald Printing & Publishing Co. 1905.

MERCK'S 1905 MANUAL of the Materia Medica. A Ready-Reference Pocket Book for the Physician and Surgeon. Cloth. Pp. 282. New York: Merck & Co. 1905.

MONTHLY CONSULAR REPORTS. January and February, 1905. Paper. Pp. 324 and 259, respectively. Washington: Government Printing Office. 1905.

REPORT OF ST. JOSEPH'S HOSPITAL of Baltimore, Md., for the Year 1904. Paper. Pp. 32. Baltimore: Thomas & Evans Printing Co. 1905.

THE JOHNS HOPKINS HOSPITAL REPORTS. Volume XII. Paper. Pp. 548. Baltimore: The Johns Hopkins Press. 1904.

ANNUAL REPORT of St. Anthony's Hospital, Denver, Colo., for the year ending 1904. Paper. Pp. 32.

DEPARTMENT OF COMMERCE AND LABOR. Bureau of Statistics, Nos. 292-3.

NEW PATENTS.

RECENT PATENTS OF INTEREST TO PHYSICIANS.

785692 Vaporizer, George H. Bell, Brooklyn.
785402 Machinery for the manufacture of medicines, James F. Buckley, Dartford, England.
785354 Sterilizer, Horace N. Fowler, Philadelphia.
785635 Instrument for shaking down the mercurial columns in clinical thermometers, Jens Peterson, Tacoma, Wash.
785639 Body stretcher, Wm. W. Seidler, Bowie, Texas.
785524 Surgical saline-infusion apparatus, John J. Shea, Beverly, Mass.
785638 Hot-water bottle, Amos J. Scritchfield, Janesville, Wis.
785185 Apparatus for handling sewage and clarifying septic matter, Fred P. Smith, New York.
785391 Massage steamer, John P. Weis, Nyack, N. Y.
785855 Invalid lifter, Henry P. Camp, Maysville, Ga.
786004 Preparing dressings for bandages, Max Cohn, Berlin, Germany.
786112 Inhaler, Milton D. Good, Kansas City, Mo.
786136 Catamenial bandage, Emma C. Morrison, New York.
785769 Apparatus for for purifying septic matter and manipulating sewage, Fred P. Smith, New York.
785838 Manufacture of sanitary antiseptic mats, John P. Suter, Scarsdale, N. Y.
786717 Clinical thermometer case, Oscar G. Bell and R. C. Stofer, Norwich, N. Y.
786722 Surgical appliance, Andrew Breslin and J. Lees, Summithill, Pa.
786358 Vaccine case and holder, Elijah M. Houghton, Detroit, Mich.
786457 Speculum, Frank McGinnis, Higginsville, Mo.
786453 Inhaling compound for firemen's use, Wm. M. Mitchell, Louisville, Ky.
786529 Device for applying remedies, Desiderius A. Stapler, San Francisco.
786697 Syringe, Frederick Wackenhuth, New York.
787083 Ophthalmoscope, Henry L. De Zeng, Philadelphia.
787162 Invalid-bedstead, Wm. C. Feely, New York.
787167 Respirator, Wm. G. Gates, Fort Benton, Mont.
787168 Movement-cure apparatus, Marion E. Gibson, Columbus, Ohio.
787170 Instrument for rendering visible the luminous effects produced by radio-active substances, Frederick H. Glew, London, England.
786892 Capsule cutter, Ernst Happe, Hamburg, Germany.
786819 Sterilizing milk or other fluids, Corstiaan de Jong, Huize Snippeschrik Amstelveensche Weg, near Amsterdam, Netherlands.
786921 Crutch, Arthur L. Smith, Auburn, N. Y.
787250 Artificial leg, Chester B. Winn, Buffalo, N. Y.